Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: 7/30/24
Facility Name: TDCJ Ellis Unit
Permit or Registration No.: 50361

Nature of Correspondence:
☐ Initial/New
☒ Response/Revision to TCEQ Tracking No.: 29923555 (from subject line of TCEQ letter regarding initial submission)

Affix this cover sheet to the front of your submission to the Waste Permits Division. Check appropriate box for type of correspondence. Contact WPD at (512) 239-2335 if you have questions regarding this form.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Notifications
☐ New Notice of Intent	☐ Alternative Daily Cover Report
☐ Notice of Intent Revision	☐ Closure Report
☐ New Permit (including Subchapter T)	☐ Compost Report
☐ New Registration (including Subchapter T)	☐ Groundwater Alternate Source Demonstration
☐ Major Amendment	☐ Groundwater Corrective Action
☐ Minor Amendment	☐ Groundwater Monitoring Report
☐ Limited Scope Major Amendment	☐ Groundwater Background Evaluation
☐ Notice Modification	☐ Landfill Gas Corrective Action
☐ Non-Notice Modification	☐ Landfill Gas Monitoring
☐ Transfer/Name Change Modification	☐ Liner Evaluation Report
☐ Temporary Authorization	☐ Soil Boring Plan
☐ Voluntary Revocation	☐ Special Waste Request
☐ Subchapter T Disturbance Non-Enclosed Structure	☐ Other:
☐ Other:	

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Responses
☐ New	☐ Annual/Biennial Site Activity Report
☒ Renewal	☐ CPT Plan/Result
☐ Post-Closure Order	☐ Closure Certification/Report
☒ Major Amendment	☐ Construction Certification/Report
☐ Minor Amendment	☐ CPT Plan/Result
☐ CCR Registration	☐ Extension Request
☐ CCR Registration Major Amendment	☐ Groundwater Monitoring Report
☐ CCR Registration Minor Amendment	☐ Interim Status Change
☐ Class 3 Modification	☐ Interim Status Closure Plan
☐ Class 2 Modification	☐ Soil Core Monitoring Report
☐ Class 1 ED Modification	☐ Treatability Study
☐ Class 1 Modification	☐ Trial Burn Plan/Result
☐ Endorsement	☐ Unsaturated Zone Monitoring Report
☐ Temporary Authorization	☐ Waste Minimization Report
☐ Voluntary Revocation	☐ Other:
☐ 335.6 Notification	
☐ Other:	

AECOM

AECOM
13460 Briarwick Drive.Suite 200
Austin, TX 78729
aecom.com

July 3, 2024

Our Reference
HW-50361
SWR 71331
EPA ID TXD980747893
RN102315199
CN601550650

Alejandra Palomo, Project Manager
Texas Commission on
Environmental Quality
Waste Permits Division, MC126
P. O. Box 13087
Austin, Texas 78711-3087

Texas Department of Criminal Justice (TDCJ) Application for Renewal and Class 2 Modification of the Ellis Unit Hazardous Waste (HW) Permit (50361)

Dear Ms. Palomo,

On behalf of the Texas Department of Criminal Justice (TDCJ), AECOM Technical Services, Inc. (AECOM) is submitting the renewal application of the TDCJ Ellis Hazardous Waste (HW) Permit 50361 for your review. An electronic version (pdf file) of the application is also included on a compact disk (CD). Additionally, we are submitting electronic word files of the mailing labels and the Part B Checklist as an excel file on two separate CDs. The files can be uploaded to the TCEQ file share website if requested.

If you have questions regarding the permit renewal application or require additional information, you may contact Jennifer Stark at 361-549-4439 [redacted] or Sandeep Nayyar at 210-859-1305 [redacted]

Sincerely,

AECOM

Jennifer Stark

Sandeep Nayyar, P.E. (Texas)
Project Manager

Jennifer Stark, P.E. (Texas)
Environmental Engineer

Enclosure

cc: Jason Pierce – TDCJ (1 electronic copy)
AECOM File

Texas Commission on Environmental Quality
Instructions and Procedural Information for Filing a Permit Application for a Hazardous Waste Storage, Processing, or Disposal Facility

Part A

[Form Availability: This form, as well as other Industrial and Hazardous Waste documents, is available on the Internet World Wide Web, Industrial and Hazardous Waste home page at address https://www.tceq.texas.gov/permitting/waste_permits/ihw_permits]

General Instructions

1. A person (individual, corporation or other legal entity) who stores, processes or disposes of hazardous waste (except where such storage and/or processing is excluded from permit requirements in accordance with 30 Texas Administrative Code (TAC) Section 335.2) must obtain a permit pursuant to the Texas Health and Safety Code. In applying to the Texas Commission on Environmental Quality, hereafter referred to as the Commission, the applicant shall follow the procedures outlined below, on the application and in the Rules of the Commission.

2. The application (one original plus three (3) complete copies[1]) should be mailed to:

   Texas Commission on Environmental Quality
   Attention: Waste Permits Division, MC126
   P. O. Box 13087
   Austin, Texas 78711-3087

3. Signature on Application [30 TAC 305.44]. The application shall be signed by the owner and operator or by a duly authorized agent, employee, officer, or representative of the owner or operator and shall be verified before a notary public. When another person signs on behalf of the owner and operator, this person's title or relationship to the owner or operator should be shown. In all cases, the person signing the form should be authorized to do so by the owner or operator (the Commission may require a person signing on behalf of an owner or operator to provide proof of authorization). An application submitted for a corporation must be signed by (or the signatory must be authorized by) a responsible corporate officer such as a president, secretary, treasurer, vice-president, or designated manager; or for a partnership or sole proprietorship, by a

---

[1] The third copy may optionally consist of paper copies of all plans and maps and a computer diskette of the remaining document. The document should be formatted in Word processing software up to and including version 6.1 or a 100% compatible format. Files may be compressed using PKZIP Ver. 2 or a 100% compatible program.

general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application shall be signed by either a principal executive officer or ranking elected official.

4. An application will not be processed until all information required to properly evaluate the application has been obtained. When an application is severely lacking in detail and/or the applicant fails to submit additionally requested information in a timely manner, the application will not be considered to be "filed in accordance with the rules and regulations of the Commission."

   Please submit any application revisions with a revised date and page numbers at the bottom of the page(s).

5. Fees and Costs

   a. The fee for filing an application is discussed in Section XII of Part B, form number TCEQ-0376.

   b. The applicant for a permit is required to bear the cost of publication of notice of the application in a newspaper as prescribed by 30 TAC Section 39.405(f).

6. A person may not commence operation of a hazardous waste management facility until the Commission has issued a permit to authorize the storage, processing, or disposal of hazardous waste, except with the approval of the Commission.

7. Designation of Material as Confidential

   The designation of material as confidential is frequently carried to excess. The Commission has a responsibility to provide a copy of each application to other review agencies and to interested persons upon request and to safeguard confidential material from becoming public knowledge. Thus, the Commission requests that the applicant (1) be prudent in the designation of material as confidential and (2) submit such material only when it might be essential to the staff in their development of a recommendation.

   The Commission suggests that the applicant NOT submit confidential information as part of the permit application. However, if this cannot be avoided, the confidential information should be described in non-confidential terms throughout the application, and submitted as a document or binder, and conspicuously marked "CONFIDENTIAL."

   Reasons of confidentiality include the concept of trade secrecy and other related legal concepts which give a business the right to preserve confidentiality of business information to obtain or retain advantages from its right in the information. This includes authorizations under 18 U.S.C. 1905 and special rules cited in 40 CFR Chapter I, Part 2, Subpart B.

   Section 361.037 of the Texas Health and Safety Code does not allow an applicant for an industrial and hazardous waste permit to claim as confidential any record pertaining to the characteristics of the industrial solid waste.

   The applicant may elect to withdraw any confidential material submitted with the application. However, the permit cannot be issued, amended, or modified if the application is incomplete.

Part II

Procedural Information

After the submittal of Parts A and B of the application, the TCEQ will provide public notice of receipt of the application. The Executive Director's staff will review the application for completeness of information submitted. During the review, the applicant may be contacted for clarification or additional information. When all pertinent information is present, the application or a summary of its contents will be forwarded for review by other state agencies and local governmental entities interested in water quality control and solid waste management. After technical evaluation, opportunity for public hearing will be afforded.

Note that for facilities which had "commenced on-site storage, processing, or disposal of hazardous waste" [see 30 TAC Section 335.43(b)] on or before the date such waste is identified or listed as hazardous by EPA, the Texas Health and Safety Code provides in Section 361.082(f) that these facilities may continue to manage hazardous waste until such time as the Commission approves or denies the application, provided that the applicant has filed the permit application in accordance with the rules and regulations of the Commission.

The Commission may act upon an application for a permit, permit amendment, permit modification, or renewal of a permit without the necessity of holding a public hearing:

1. (a) When notice of the application has been mailed to persons possibly affected by the proposed permit; and

   (b) When notice has been published at least once in a newspaper regularly published or circulated within each county where the proposed facility is located; and

   (c) Within forty-five (45) days following publication of the Commission's notice, a Commissioner, the Executive Director or an affected person has not requested a public hearing; or

2. For a Class 1 or a Class 2 permit modification or a minor amendment to a permit. The Commission may, in certain cases, hold a public hearing for a Class 2 permit modification or a minor amendment.

A public hearing may be scheduled on an application for a RCRA hazardous waste permit when requested by a Commissioner, the Executive Director, or an affected person within forty-five (45) days following the newspaper publication.

Requirements of Giving Notice of the Application:

1. By the Applicant: Every applicant for a permit, permit amendment, permit modification, or permit renewal shall publish notice (see note below) of the application at least once in a newspaper regularly published or circulated within each county where the proposed facility is located. Where a public hearing has been requested, notice will be mailed to the applicant in ample time for publication, which shall be not less than thirty (30) days prior to the date set for the hearing. Except in the case of a notice of a permit modification request, the Commission will mail the appropriate notice and instructions for publication to the applicant.

   NOTE: Additional publication and direct mail notice to affected persons will result if a public hearing is requested following newspaper publication of the notice of application. The cost of providing this additionally required publication and service of notice to affected persons will be assumed by the applicant.

2. By the Texas Commission on Environmental Quality: The Commission will mail notice of the application (except for permit modifications) to affected persons and certain governmental entities. The notice will be mailed at the same time instructions for newspaper publications are mailed to the applicant.

3. Bilingual Notice Instructions:

   For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, requires a bilingual education program for an entire school district should the requisite alternative language speaking student population exist. However, there may not be any bilingual-speaking students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location to satisfy the school's obligation to provide such a program.

   If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the applicant complete the publication in the alternative language.

Bilingual Notice Application Form:

Bilingual notice confirmation for this application:

1. Is the school district of the elementary or middle school nearest to the facility required by the Texas Education Code to have a bilingual program?

   ☒YES ☐ NO

   (If NO, alternative language notice publication not required)

2. If YES to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility?

   ☒ YES ☐ NO

   (If YES to questions 1 and 2, alternative language publication is required; If NO to question 2, then consider the next question)

   There is no Spanish paper published in this region; therefore, questions 3 and 4 are not applicable.

3. If YES to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location?

   ☐ YES ☐ NO

(If Yes to questions 1 and 3, alternative language publication is required; If NO to question 3, then consider the next question)

4. If YES to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC 89.1205(g)?

☐ YES ☐ NO

(If Yes to questions 1 and 4, alternative language publication is required; If NO to question 4, alternative language notice publication not required)

If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program? Spanish_________

Consideration of the Permit Application by the Commission:

The applicant will be notified by the Commission when the application is set for final consideration. If the Commission issues the permit, the applicant will be mailed a copy of the permit by the TCEQ Office of the Chief Clerk within one (1) month following Commission approval. (NOTE: Only one copy is mailed to the applicant and that copy will be sent to the official mailing address of the applicant as shown on the permit application form.)

Table of Contents

Texas Commission on Environmental Quality

Public Involvement Plan Form
for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

☐ New Permit or Registration Application
☒ New Activity – modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

☒ Requires public notice,

☐ Considered to have significant public interest, **and**

☐ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

If all the above boxes are not checked, a Public Involvement Plan is not necessary.
Stop after Section 2 and submit the form.

☐ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V

Waste ☐ Municipal Solid Waste ☒ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)

- ☐ Texas Land Application Permit (TLAP)
- ☐ State Only Concentrated Animal Feeding Operation (CAFO)
- ☐ Water Treatment Plant Residuals Disposal Permit

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

This is a Hazardous Waste Permit renewal Application (HW 50361) with a major amendment. The permit renewal is for a closed landfill in post-closure care.

The requested amendment includes:

1. Decreasing the groundwater sampling frequency.
2. Decreasing the requirement for benchmark surveys from every year to every five years.
3. Adjusting the Groundwater Detection Monitoring Parameters listed in Table VI.B.3.c.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

Huntsville

(City)

Walker

(County)

7901.01
7901.02

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

☐ City ☒ County ☐ Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

83.5 %

(b) Per capita income for population near the specified location

$23,220

(c) Percent of minority population and percent of population by race within the specified location

26.3 %

(d) Percent of Linguistically Isolated Households by language within the specified location

7.8 % - Entire State of Texas, 2000

(e) Languages commonly spoken in area by percentage

English: 82.7%, Spanish 14.6%, Other Indo European Languages 0.4%, Asian and Pacific Islander languages 1.1%, Other languages 1.3%

(f) Community and/or Stakeholder Groups

C.O.M.E. Center, Good Shepherd Mission, Texas Workforce Commission Workforce Solutions WIA Program, Huntsville Housing Authority, Huntsville Public Library, Region 6 Education Service Center (GED), Texas Education Agency (TEA), SAAFE House, Texas Department of Human Services, Walker County Hospital District Indigent Healthcare, Houston Area Council on Recovery, Brazos Valley Council on Alcohol and Substance Abuse, DAPA Psychiatric & Substance Abuse Programs

(g) Historic public interest or involvement

Little to none

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☐ Yes ☒ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☒ No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

☒ Yes ☐ No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

☐ Publish in alternative language newspaper
☑ Posted on Commissioner's Integrated Database Website
☐ Mailed by TCEQ's Office of the Chief Clerk
☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☒ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☒ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

☐ TCEQ Regional Office ☐ TCEQ Central Office
☑ Public Place (specify) Huntsville Public Library

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☒ Yes ☐ No

What types of notice will be provided?

☐ Publish in alternative language newspaper
☒ Posted on Commissioner's Integrated Database Website
☐ Mailed by TCEQ's Office of the Chief Clerk
☑ Other (specify)

There is no Spanish language newspaper published in this region.

Texas Commission on Environmental Quality
Permit Application for a Hazardous Waste Storage/Processing/Disposal Facility
Part A - Facility Background Information

I. General Information

A. Facility Name: Texas Department of Criminal Justice – Ellis Unit

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: 71331 EPA I.D. No.: TXD 980747893

Street Address (If Available): 1697 FM 980 Road

City: Huntsville State: Texas Zip Code: 77320-3314

County: Walker

Telephone Number: 936-437-7247 Charter Number: NA

If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.

B. Facility Contact

1. List those persons or firms who will act as primary contact for the applicant during the processing of the permit application. Also indicate the capacity in which each person may represent the applicant (engineering, legal, etc.). The person listed first will be the primary recipient of correspondence regarding this application. Include the complete mailing addresses and phone numbers.

   Jason Pierce
   P.O. Box 4011
   Huntsville, Texas 77342-4011
   P: 936-437-7247
   F: 325-223-0294
   Email: [redacted]

2. If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.

   Not applicable.

C. Operator[1]: Identify the entity who will conduct facility operations.

Operator Name: Texas Department of Criminal Justice – Ellis Unit

Address: 1697 FM 980 Road

City: Huntsville, State: Texas Zip Code: 77320-3314

Telephone Number: 939-437-7247 Charter Number: NA

---

[1] The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on this application [Section 361.087 Texas Health and Safety Code].

D. Owner

1. Indicate the ownership status of the facility:

   a. Private ________

      (1) ________Corporation
      (2) ________Partnership
      (3) ________Proprietorship
      (4) ________Non-profit organization

   b. Public X

      (1) ________Federal
      (2) ________Military
      (3) X State
      (4) ________Regional
      (5) ________County
      (6) ________Municipal
      (7) ________Other (specify)

2. Does the operator own the facility units and facility property?

   ☒ Yes ☐ No

   If you checked "no",

   a. Submit as "Attachment A" a copy of the lease for use of or the option to buy said facility units and/or facility property, as appropriate; and

   b. Identify the facility units' owner(s) and/or facility property owner(s). Please note that the owner(s) is/are required to sign the application on page 5.

Owner Name: ____

Address: ____

City: ____________________, State: ____________ Zip Code: ________

Telephone Number: ______________________

Owner Name: ___________________________

Address: _______________________________

City: __________________, State: ____________ Zip Code: _________

Telephone Number: _________________

E. Type of Application Submittal:

Initial _______ or Revision ___X____

F. Registration and Permit Information

Indicate (by listing the permit number(s) in the right-hand column below) all existing or pending State and/or Federal permits or construction approvals which pertain to pollution control or industrial solid waste management activities conducted by your plant or at your location. Complete each blank by entering the *permit number*, or the *date of application*, or *"none"*.

Relevant Program and/or Law	Permit No.	Agency*
1. Texas Solid Waste Disposal Act	71331	TCEQ
2. Wastewater disposal under the Texas Water Code	0031607	TCEQ
3. Underground injection under the Texas Water Code	NA	NA
4. Texas Clean Air Act	NA	NA
5. Texas Uranium Surface Mining & Reclamation Act	NA	NA
6. Texas Surface Coal Mining & Reclamation Act	NA	NA
7. Hazardous Waste Management program under the Resource Conservation and Recovery Act	TXD 980747893	US EPA
8. UIC program under the Safe Drinking Water Act	NA	NA
9. TPDES program under the Clean Water Act	WQ0011180001	TCEQ
10. PSD program under the Clean Air Act	NA	NA
11. Nonattainment program under the Clean Air Act	NA	NA
12. National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction approval under the Clean Air Act	NA	NA
13. Ocean dumping permits under the Marine Protection Research and Sanctuaries Act	NA	NA
14. Dredge or fill permits under section 404 of the Clean Water		

Act	NA	NA
15. Other relevant environmental permits	See Attachment I.F	

*Use the following acronyms for each agency as shown below:

TCEQ = Texas Commission on Environmental Quality
TRC = Texas Railroad Commission
TDH = Texas Department of Health
TDA = Texas Department of Agriculture
EPA = U.S. Environmental Protection Agency
CORPS = U.S. Army Corps of Engineers

G. Give a brief description of the nature of your business.

TDCJ Ellis Unit is a correctional institution that houses State-convicted prisoners, offers vocational activities, laundry, and food services, and operates a variety of enterprises. A farm on the property raises row crops and livestock. The unit operates a furniture factory, reconditions school buses, cuts small amounts of garments, and houses a regional warehouse for the maintenance operation.

H. TCEQ Core Data Form

The TCEQ requires that a Core Data Form (Form 10400) be submitted on all incoming applications. For more information regarding the Core Data Form, call (512) 239-1575 or go to the TCEQ website at http://www.tceq.texas.gov/permitting/central_registry/guidance.html.

The Core Data Form is attached.

Signature Page

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator Signature: ______________ Date: 7/23/24

Name and Official Title (type or print): Ron Hudson – Facility Division Director

Operator Signature: ______________ Date: ______________

Name and Official Title (type or print): ______________

Operator Signature: ______________ Date: ______________

Name and Official Title (type or print): ______________

Owner Signature: ______________ Date: ______________

Name and Official Title (type or print): ______________

To be completed by the operator if the application is signed by an authorized representative for the operator

I, ______________ (operator) hereby designate ______________ (authorized representative) as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

____
Printed or Typed Name of Operator or Principal Executive Officer

____
Signature

(Note: Application Must Bear Signature & Seal of Notary Public)

Subscribed and sworn to before me by the said ______________ on this 23 day of July, 2024.

My commission expires of the 21 day of January, 2025

Lavonna Powers
Notary Public in and for Walker County, Texas

LAVONNA F. POWERS
Notary Public, State of Texas
Comm. Expires 01-21-2025
Notary ID 5233268

II. Facility Background Information

A. Location of Facility for which the application is submitted

1. Give a description of the location of the facility site with respect to known or easily identifiable landmarks.

   The Ellis facility is located on FM 980, 14 miles northeast of Huntsville, Texas.

2. Detail the access routes from the nearest U.S. or State Highway to the facility.

   Take exit 116 off IH 45 and go north on State Road 19 approximately 13 miles to its intersection with FM 980. Turn left onto FM 980 and proceed approximately 8 miles to the main Ellis Unit gate.

3. Enter the geographical coordinates of the facility:

   Latitude: 30 deg 53 min 6.36 sec

   Longitude: 95 deg 27 min 19.13sec

4. Is the facility located on Indian lands?

   ☐ Yes ☒ No

B. Legal Description of Facility

Submit as "Attachment B" a legal description(s) of the tract or tracts of land upon which the waste management operations referred to in this permit application occur or will occur. Although a legal description is required, a metes and bounds description is not necessary for urban sites with appropriate "lot" description(s). A survey plat or facility plan drawing which shows the specific points referenced in the survey should also be included in Attachment B.

C. SIC Codes

List, in descending order of significance, the four digit standard industrial classification (SIC) codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words. These classifications may differ from the SIC codes describing the operation generating the hazardous wastes.

4-digit SIC Code	Description
9223	Correctional Institutions

SIC code numbers are descriptions which may be found in the Standard Industrial Classification Manual prepared by the Executive Officer of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual.

III. Wastes and Waste Management

A. Waste Generation and Management Activities

Is any hazardous waste [see Title 40, Code of Federal Regulations (CFR), Part 261] presently or proposed to be generated or received at your facility?

☐ Yes ☒ No

If no, skip to question Number 2 below.

If yes, answer the following question.

1. Are you presently registered with TCEQ as a solid waste generator?

   ☐ Yes ☐ No ☐ Pending

   If no, contact the Industrial and Hazardous Waste Division of TCEQ in Austin, Texas to obtain registration information. Also, continue with the application form (go to Number 2 below).

   If yes, go to Section I of your TCEQ Notice of Registration, determine which of your wastes are hazardous, and list these wastes (and mixtures) in Table III-1 (see Number 2 below).

2. Complete Table III-1, Hazardous Wastes and Management Activities, below, listing all hazardous wastes, all mixtures containing any hazardous wastes, and hazardous debris which were, are presently, or are proposed to be handled at your facility in interim status or permitted units. See 40 CFR 261 and 268.2, attaching additional copies as necessary.

   Guidelines for the Classification & Coding of Industrial Wastes and Hazardous Wastes, TCEQ publication RG-22, contains guidance on how to properly classify and code industrial waste and hazardous waste in accordance with 30 TAC 335.501-335.515 (Subchapter R).

   If you are not registered with TCEQ, enter "NA" for TCEQ Waste Code Number.

   For the EPA Hazardous Waste Numbers, see 40 CFR 261.20-33. For annual quantity, provide the amount in units of pounds (as generated and/or received) for each waste and/or waste mixture.

   Table III-1 is not applicable as there is no documentation of disposal of hazardous waste at the facility.

B. Waste Management Units Summary

1. For each waste and waste mixture listed in Table III-1 that is stored, processed, and/or disposed on-site (except where such storage and/or processing is excluded from permit requirements in accordance with Texas Administrative Code (TAC) Section 335), complete Table III-2, Hazardous Waste Management Unit Checklist, and enter the name of each hazardous waste management unit (Note: Please make copies of Table III-2 if necessary).

Give the design capacity of each hazardous waste management unit in any of the units of measure shown. In the case of inactive or closed units for which design details are unavailable, an estimate of the design capacity is sufficient.

Please provide a description for each waste management unit described in your own words on the line provided for "Waste Management Unit."

Table III-1 is not applicable as there is no documentation of disposal of hazardous waste at the facility.

2. Has the applicant at any time conducted the on-site disposal of industrial solid waste now identified or listed as hazardous waste?

   ☒ Yes ☐ No

   If yes, complete Table III-2 indicating the hazardous waste management units which were once utilized at your plant site but are no longer in service (i.e., inactive or closed facility units).

   Table III-2 has been completed.

   If no, and if no hazardous waste is presently or proposed to be stored [for longer than 90 days (see 30 TAC Section 335.53)], processed, or disposed of at your facility, then you need not file this permit application. Otherwise proceed with the application form.

3. Provide an estimate of the total weight (lbs) of hazardous waste material that has been disposed of and/or stored within your site boundaries and not removed to another site.

   Although there is no documented disposal of hazardous waste at the landfill, it is assumed that that the maximum quantity of hazardous waste that could have been disposed in the landfill is less than five percent of the total waste disposed (65,500 cy), based on previous documentation submitted in the original 2001 permit application. Therefore, the maximum quantity of hazardous waste in the landfill is 3,275 cy.

C. Location of Waste Management Units

1. Submit as "Attachment C" a drawn-to-scale topographic map (or other map if a topographic map is unavailable) extending one mile beyond the facility boundaries, depicting the following:

   a. The approximate boundaries of the facility (described in Section II.B) and within these boundaries, the location and boundaries of the areas occupied by each active, inactive, and proposed hazardous waste management unit (see Table III-2). Each depicted area should be labeled to identify the unit(s), unit status (i.e., active, inactive, or proposed), and areal size in acres.

   b. The overall facility and all surface intake and discharge structures;

   c. All on-site injection wells where liquids are injected underground;

d. All known monitor wells and boreholes within the property boundaries of the facility; and

e. All wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within the map area and the purpose for which each water well is used (e.g., domestic, livestock, agricultural, industrial, etc.).

2. Submit as "Attachment D" photographs which clearly delineate all hazardous waste management storage, processing, and disposal units, as well as sites of future storage, processing and disposal units.

D. Flow Diagram/Description

Show as "Attachment E" process flow diagrams and step-by-step word descriptions of the process flow, depicting the handling, collection, storage, processing, and/or disposal of each of the hazardous wastes previously listed in this application.

The flow diagrams or descriptions should include the following information:

1. Originating point of each waste and waste classification code;
2. Means of conveyance utilized in every step of the process flow;
3. Name and function of each facility component through which the waste passes;
4. The ultimate disposition of all wastes (if off-site, specify "off-site") and waste residues.

This is not applicable since TDCJ is a conditionally exempt small quantity generator (CESQG).

IV. Index Of Attachments

List and index below all attachments to this application and indicate if included or not included:

Item	Attachments	Attachment	Included	Not Included
I.D.2.a	Lease/Option to buy	A		X
II.B	Site legal description	B	X	
III.C.1	Facility boundaries and adjacent waters map	C	X	
III.C.2	Photographs	D	X	
III.D	Process flow diagram/description	E		X
I.F.1	Additional Permits	F	X	
I.G	Core Data Form	G	X	

Table III-1 – Hazardous Wastes and Management Activities

Not applicable

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received

---

[1] "Storage" means the holding of solid waste for a temporary period, at the end of which the waste is processed, disposed of, or stored elsewhere.

[2] "Processing" means the extraction of materials, transfer, volume reduction, conversion to energy, or other separation and preparation of solid waste for reuse or disposal, including the treatment or neutralization of hazardous waste, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material from the waste or so as to render such waste non-hazardous or less hazardous; safer for transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The "transfer" of solid waste for reuse or disposal as used above, does not include the actions of a transporter in conveying or transporting solid waste by truck, ship, pipeline, or other means. Unless the Executive Director determines that regulation of such activity is necessary to protect human health or the environment, the definition of "processing" does not include activities relating to those materials exempted by the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., as amended.

Table III-2 – Hazardous Waste Management Unit Checklist

Waste Management Unit	TCEQ N.O.R. Unit #	Status[1]	Design Capacity[2]	Number of Years Utilized	Date in Service
Hazardous Waste Landfill	008	Closed	65,500 cy	12	1976-1988

---

[1] Indicate only one of the following: Active, Inactive, Closed, or Proposed

[2] Cubic yards, gallons, pounds, gallons/minute, pounds/hour, BTUs/hour, etc.

ATTACHMENT A

NOT APPLICABLE

ATTACHMENT B

SITE LEGAL DESCRIPTION

0 7 [illegible] 04567

AFFIDAVIT TO THE PUBLIC

INDUSTRIAL SOLID WASTE DISPOSAL SITE DEED RECORDATION

STATE OF TEXAS

COUNTY OF WALKER

Before me, the undersigned authority, on this day personally appeared James A. Lynaugh, who, after being by me duly sworn, upon oath states that he is the owner of record of that certain tract or parcel of land lying and being situated in Walker County, Texas, and being more particularly described as follows:

See Exhibit "A" (Attached)

I.

The undersigned further states that from the year 1964 to the year 1988 there was operated on the aforesaid tract of land a Solid Waste Disposal Site.

Pursuant to the Rules of the Texas Water Commission pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Walker County, Texas in compliance with the recordation requirements of said rules. Specifically, such operation was conducted on that portion of the aforesaid tract described as follows:

See Exhibit "B" (Attached)

II.

Wastes deposited hereon have been classified by the Texas Water Commission as Class I. Class I waste is defined as "Any industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat, or other means, and may pose a substantial present or potential danger to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise managed, including hazardous industrial waste."

III.

Further, the undersigned, Robert E. Petty, IV was the operator of such Solid Waste Disposal Site.

Notice is hereby provided to any future owner or user of the site to consult with the Texas Water Commission prior to planning or initiating any activity involving the disturbance of the landfill cover or monitoring system.

WITNESS MY/OUR HAND(S) on this the 14 day of September, 1989.

James A. Lynaugh, Director
Owner: Institutional Division,
Texas Department of
Criminal Justice

Robert E. Petty, IV Asst. Director
Operator: Facilities Division,
Institutional Division,
Texas Department of
Criminal Justice

SWORN TO AND SUBSCRIBED before me on this the 14 day of September, 1989.

Notary Public in and for
Walker County, Texas

A TRUE COPY
I HEREBY CERTIFY, JAMES D. PATTON
COUNTY CLERK WALKER COUNTY
BY ____________ DEPUTY

EXHIBIT A

The following notes describe that certain tract of land located in Walker County, Texas and described therein the Deed Record Books, being owned by the State of Texas, and under the control of the Texas Department of Corrections, and being a parcel of larger tracts, known as the Ellis I prison unit. In conveyance deed from Albert E. Cunningham et ux to the State of Texas dated November 10, 1959, recorded in Volume 165 pages 138,139,140 of Walker County Deed Records, conveying 2510.45 acres, more or less, in Three(3) tracts of land. The second tract, being the subject tract, containing 811.00 acres, more or less, out of and part of the I.G. Webb Survey Abstract No. 572, in Two(2) tracts of 545.00 and 266.00 acres, more or less. Said 266.00 acre tract being the tract that contains subject landfill, described as follows:

Tract No.2 Beginning at the North corner of Lot No.4 in a subdivision of the said Webb Survey, a stake on S.W. bank of the Trinity River from which a Pin Oak, 6 inches bears south 73 varas.

Thence S45 W with line of lot No.4 for 1987 varas to West corner of said lot. A stake from which a Post Oak, 10 inches, bears S42 W, 8 varas, and a Gum Elastic, 8 inches, bears N5 E 28 varas.

Thence N45 W 1117 varas to North corner of the E. Allen League. A stake from which a Pin Oak, 12 inches, bears S23 W 27 varas.

Thence N63 30'E 1900 varas to stake on Southwest bank of Trinity River, from which a Post Oak, 18 inches, bears S35 E 7 varas. And a Hackberry, 8 inches, bears S88 E 11 varas.

Thence down the Trinity River with meanderings thereof to the place of beginning, containing 266 acres of land, more or less.

A TRUE COPY
I HEREBY CERTIFY, JAMES D. PATTON
COUNTY CLERK WALKER COUNTY
BY ______________________ DEPUTY

EXHIBIT B

Starting at the most Northerly corner of the Thomason tract, being a portion of that certain tract of land described in a Deed of Trust from Marguerite E. Thomason and husband J.H. Thomason to A.C. Williams dated September 2, 1937 as recorded in Volume W Page 251, of the Deed of Trust records of Walker County, Texas. Said corner being S45 50'E 795.00' from the West corner of Lot No.4 described in in EXHIBIT A. From said Northerly corner go S45 W, 35.00' to centerline of dirt road.

Thence N45 52'21"W, 991.14' to point in centerline of dirt road.

Thence S45 29'11"W, 34.15' to fence corner of that certain tract of land out of a called 266 acre tract out of the I.G. Webb Survey, Abstract No.572 recorded in Volume 165 Pages 138,139,140, of the Deed Records of Walker County, Texas, and point of beginning.

Thence S45 43'46"W, 463.69' to fence corner.

Thence N40 31'12"W, 711.50' to point in fenceline.

Thence N44 07'39"E 530.02' to point in fenceline for corner.

Thence S45 53'03"E 695.43' to fence corner and point of beginning, containing 9.07 acres more or less and is site of subject landfill.

FILED FOR RECORD
JAMES D. PATTON
COUNTY CLERK
'89 SEP 15 AM 10 03
DEPUTY

THE STATE OF TEXAS
COUNTY OF WALKER
I, James D. Patton, County Clerk in and for Walker County, Texas do hereby certify that this instrument was filed for record in the volume and page of the named record and at the time and date as stamped hereon by me.

JAMES D. PATTON, CLERK
WALKER COUNTY, TEXAS

OFFICIAL PUBLIC RECORDS

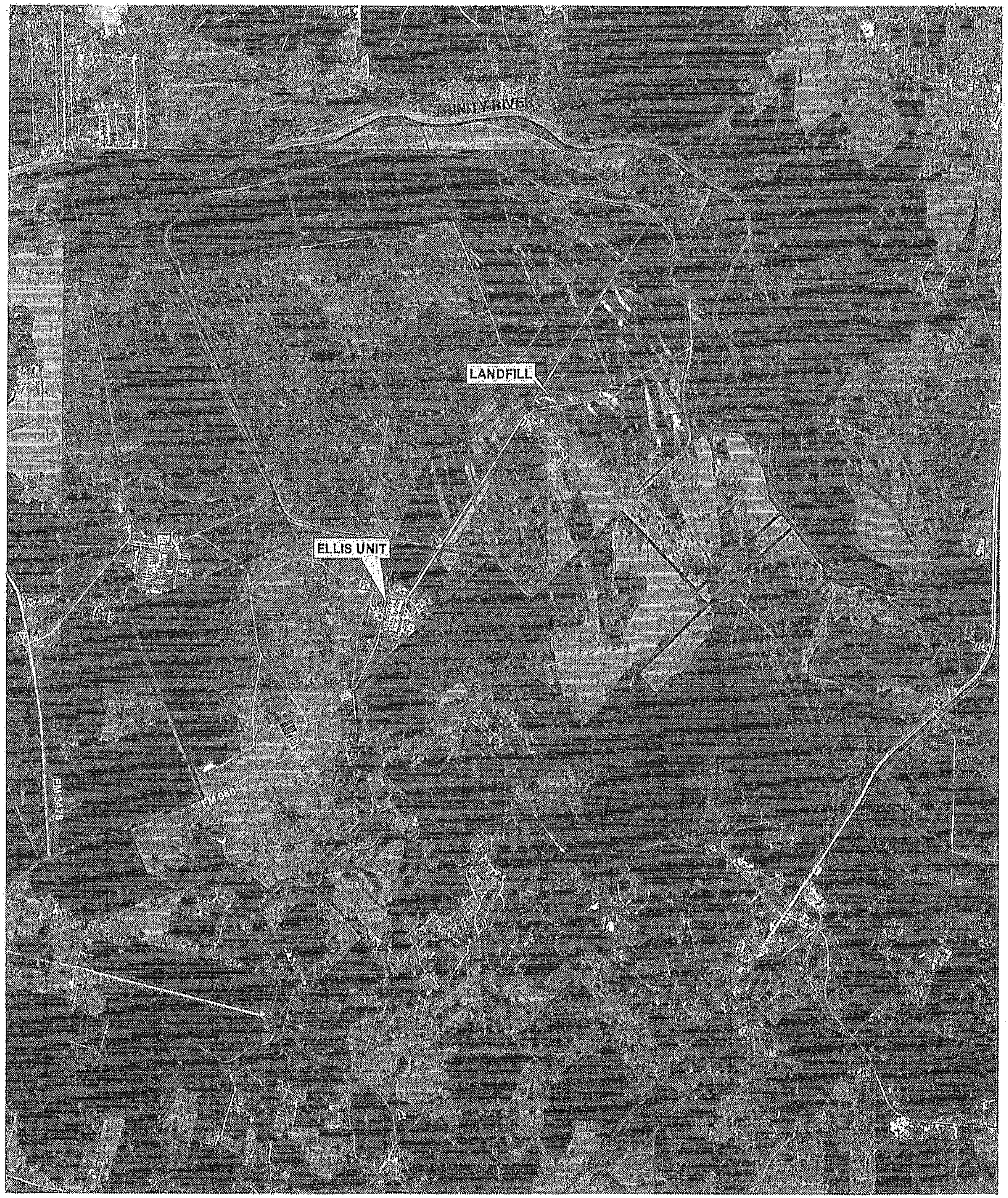
STATE OF TEXAS
COUNTY OF WALKER
I, James D. Patton, [illegible] County, Texas,
do hereby certify [illegible] true and correct
copy of the [illegible] Official Public
File # 04567
[illegible] 15
September 1989

this map prepared by:

Texas Department of Criminal Justice
Agribusiness, Land and Minerals
Huntsville, Texas

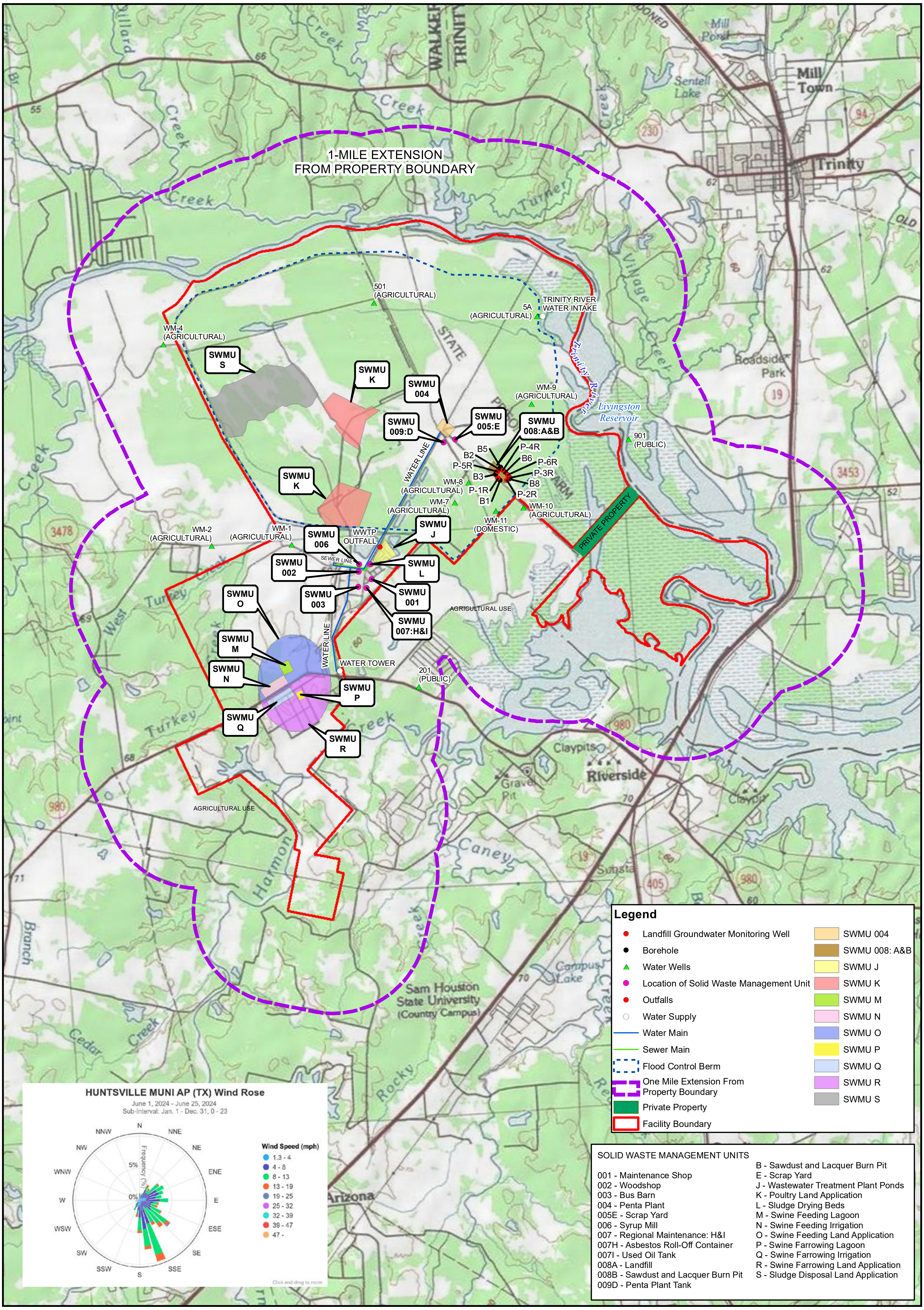
Permit No. 50361
Attachment B
Sheet 1 of 1

SCALE = 1:60,000 FT



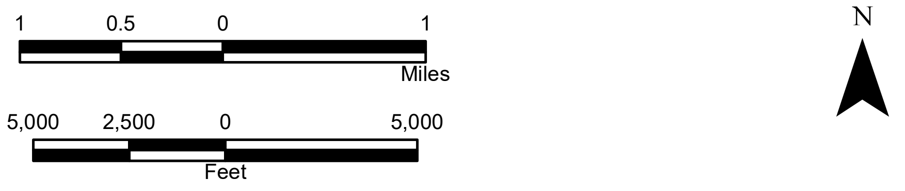
ATTACHMENT C

TOPOGRAPHIC MAP



SOLID WASTE MANAGEMENT UNITS

001 - Maintenance Shop
002 - Woodshop
003 - Bus Barn
004 - Penta Plant
005E - Scrap Yard
006 - Syrup Mill
007 - Regional Maintenance: H&I
007H - Asbestos Roll-Off Container
007I - Used Oil Tank
008A - Landfill
008B - Sawdust and Lacquer Burn Pit
009D - Penta Plant Tank
B - Sawdust and Lacquer Burn Pit
E - Scrap Yard
J - Wastewater Treatment Plant Ponds
K - Poultry Land Application
L - Sludge Drying Beds
M - Swine Feeding Lagoon
N - Swine Feeding Irrigation
O - Swine Feeding Land Application
P - Swine Farrowing Lagoon
Q - Swine Farrowing Irrigation
R - Swine Farrowing Land Application
S - Sludge Disposal Land Application



AECOM

19219 KATY FREEWAY, SUITE 100
HOUSTON, TX 77094
PH: (281) 646-2400

Title: **Topographic Map**

Project: TDCJ Ellis Unit, RCRA Renewal
HW-50361

Client: **Texas Department of Criminal Justice**

Scale:	Drawn by:	Date:	Project No.:	File Name:	Attachment:
As Shown	KPL	7/1/2024	60726186	PA Att C - Topographic Map.mxd	C
	Chk'd by: JST	Date: 7/1/2024			

Path: \\na.aecomnet.com\lfs\AMER\Austin-USAUS2\DCS\Projects\ENV\TDCJ\TDCJ Ellis\HW Permit Renewal\2024 Renewal\09_GIS\MXD\PA Att C - Topographic Map.mxd

ATTACHMENT D

PHOTOGRAPHS

Permit No. 50361
Permittee: TDCJ Ellis Unit

Attachment D
Photographs

JUN 18 2012

ATTACHMENT E

NOT APPLICABLE

ATTACHMENT F

ADDITIONAL PERMITS

Appendix I.F
List of Additional Permits for Part A

Permit Type		Permit Number	Active or Pending
Air New Source Permits	TCEQ	WA0039K	Active
Air New Source Permits	TCEQ	44379	Active
Air New Source Permits	TCEQ	53613	Canceled
Air New Source Permits	TCEQ	56090	Active
Air New Source Permits	TCEQ	81118	Active
Petroleum Storage Tank	TCEQ	56148	Active
Public Water System/Supply	TCEQ	2360002	Inactive
Used Oil	EPA	TXD 980747893	Active
Used Oil	TCEQ	A85964	Inactive
CAFO	TCEQ	TXG920525	Active
Air New Source Permits	TCEQ	168935	Active
Air New Source Permits	TCEQ	50879	Active
IHW Corrective Action	TCEQ	71331	Active
Industrial and Hazardous Waste	TCEQ	50361	Active
Wastewater	TCEQ	TX0031607	Active
Wastewater Agriculture	TCEQ	WQ0011180001	Active

ATTACHMENT G

CORE DATA FORM

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)*

☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 601550650		RN 102315199

SECTION II: Customer Information

4. General Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*

If new Customer, enter previous Customer below:

TEXAS DEPARTMENT OF CRIMINAL JUSTICE

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits) 74-6001431	**10. DUNS Number** *(if applicable)*

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☒ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?

☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator ☐ Other:

☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:

TDCJ FACILITIES DIVISION ATTN: ENVIRONMENTAL DEPARTMENT

PO BOX 4011

City	HUNTSVILLE	**State**	TX	**ZIP**	77342	**ZIP + 4**	4011

16. Country Mailing Information *(if outside USA)*

17. E-Mail Address *(if applicable)*

[redacted]

18. Telephone Number **19. Extension or Code** **20. Fax Number** *(if applicable)*

(936) 437-7247		(325) 223-0294

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

TDCJ ELLIS UNIT

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	1697 FM 980 RD						
	City	HUNTSVILLE	**State**	TX	**ZIP**	77343	**ZIP + 4**
24. County	WALKER						

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	Take exit 116 off IH 45 and go north on State Road 19 approximately 13 miles to its intersection with FM 980. Turn left onto FM 980 and proceed approximately 8 miles to the main Ellis Unit gate.

26. Nearest City	**State**	**Nearest ZIP Code**
HUNTSVILLE	TX	77343

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	53	6.36	95	27	19.13

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
9223		922140	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

CORRECTIONAL FACILITY

34. Mailing Address:	TDCJ FACILITIES DIVISION ATTN: ENVIRONMENTAL DEPARTMENT							
	PO BOX 4011							
	City	HUNTSVILLE	**State**	TX	**ZIP**	77342	**ZIP + 4**	4011
35. E-Mail Address:	tdcjenv@tdcj.texas.gov							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(936) 437-7247		(325) 223-0294

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	SCOTT LAWSON	**41. Title:**	ENV PROTECTION SPECIALIST III
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(936) 437-7247		( ) -	[redacted]

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	TEXAS DEPARTMENT OF CRIMINAL JUSTICE	**Job Title:**	DIRECTOR, FACILITIES DIVISION
Name *(In Print):*	RON HUDSON	**Phone:**	(936) 437- 7200
Signature:		**Date:**	7/23/24

Texas Commission on Environmental Quality
Permit Application for Industrial and Hazardous Waste Storage/Processing/Disposal Facility with Compliance Plan

Part B Application

The TCEQ is committed to accessibility. You may request an accessible version of these documents, by contacting the Industrial and Hazardous Waste permits section program at (512)-239-2335 or by email at [redacted]

Disclaimer:

This document is intended for use in the RCRA Part B application preparation and review process. It contains a screening sheet that will produce a customized Part B application outline that is based on a facility's specific operating characteristics. This screening sheet and application outline are not a substitute for required application materials. This document may omit requirements applicable to the facility and/or include requirements that are not applicable. Please use the knowledge about the facility's operational design and history to ensure that a complete application based on 40 Code of Federal Regulations Part 270 and 30 Texas Administrative Code (TAC) Chapter 305 and Chapter 335 is submitted. Please include any necessary information that may have been mistakenly screened out. If regulatory requirements change during the application process, the TCEQ may request additional information before a permit is issued.

Quick Start Instructions for Part B Application with Screening Tool

Go to screening sheet

View Entire Application

Please provide a response to all items. **Note: depending on certain selections you make, answers to some questions will automatically default to "No" but some questions will remain to be answered by the user as "Yes" or "No", and if the user does not provide a "Yes" or "No" answer, the application will be generated as if answered "Yes".** It is critical that each response is accurate to ensure retrieval of all applicable application items. If you need to change any response after the initial answer, change the answer and the application will update the application. Print (electronic or physical) a copy of the application materials to create the physical appendix format of your application.

er Questions 1 through 11 and <u>DO NOT</u> leave any questions) unanswered to ensure an complete application.

1. Is this an application for a compliance plan only?	○ Yes	○ No
2. Is this permit for post-closure care only?[1]	○ Yes	○ No
3. Is this an application for a compliance plan and post-closure care only?	○ Yes	○ No
4. Is this an application for WMU(s) with a compliance plan?[2]	○ Yes	○ No
5. Is this an application for WMU(s) with post-closure care?	○ Yes	○ No
6. Is this an application for WMU(s), with compliance plan and post-closure care?	○ Yes	○ No
7. Is this an application for WMU(s) only?	○ Yes	○ No
	○ Yes	○ No
Surface Impoundments	○ Yes	○ No
Waste Piles	○ Yes	○ No
Land Treatment Units	○ Yes	○ No
Landfills[3]	○ Yes	○ No
Container Storage Areas	○ Yes	○ No
	○ Yes	○ No
Incinerators	○ Yes	○ No
	○ Yes	○ No
Drip Pads	○ Yes	○ No
	○ Yes	○ No
Miscellaneous Units[4]	○ Yes	○ No
8. Is this a new commercial facility?	○ Yes	○ No
9. Is this a "One-Stop" application with air provisions?	○ Yes	○ No
10. Is this facility military, federal, or state owned?	○ Yes	○ No
11. Does the application contain Confidential Materials?	○ Yes	○ No

Reset All Screening Questions

Jump to Table of Content(s) / Applicable Tables

Generate Application and Save

1 - If "Yes" is indicated for Post-Closure Care only, then all non-land-based units above will default to "No". Additionally if "Yes" is indicated for Post-Closure Care only, then at least one Land-Based Unit must be "Yes."

2 - If "Yes" is indicated for Active Permit Unit(s) with a Compliance Plan, then at least one unit must be "Yes."

3 - Select "Landfills- Yes" for any land-based unit that was closed as a landfill. (Example Surface Impoundment closed s a landfill.)

4 - For Miscellaneous Units, select "yes" and also select "Yes for the appropriate unit types (s) shown above. Address all applicable engineering requirements (e.g., landfill requirements from Section V.G) in Section V.K.

Texas Commission on Environmental Quality
Permit Application for Industrial and Hazardous Waste Storage/Processing/Disposal Facility with Compliance Plan

Customized Part B Application

This form, as well as other Industrial and Hazardous Waste documents, Part B electronic checklist, and pertinent rules, is available on the Internet. The TCEQ Home Page is at: https://www.tceq.texas.gov. Once you have accessed the home page, select "Forms and Publications" and follow the system prompts. The number for this form is 00376. Questions may be e-mailed to ihwper@tceq.texas.gov.

Introduction:

This permit application is generally a reorganized summary of the Part B information requirements of 40 CFR Part 270 and 30 Texas Administrative Code (TAC) Chapter 305 Subchapters C and D and Chapter 335. The TCEQ may request additional information before a permit is issued, if regulatory requirements change.

The original application plus all copies for New, Class 3 Modifications should be submitted to:

Texas Commission on Environmental Quality
Attention: Waste Permits Division, MC 126
P. O. Box 13087
Austin, Texas 78711-3087

The original application plus all copies for Class 1, Class 1', Class 2 Modifications and Minor Amendments should be submitted to:

Texas Commission on Environmental Quality
Attention: Industrial and Hazardous Waste Permits Section, MC 130
Waste Permits Division
P. O. Box 13087
Austin, Texas 78711-3087

Telephone Inquiries:

(512) 239 - 6412 (For industrial and hazardous waste classification) - Technical Analysis Team, Industrial & Hazardous Waste Permits Section, Waste Permits Division

(512) 239 - 6413 (For solid waste registration number, EPA identification number, and notice of registration) - Registration and Reporting Section, Permitting and Registration Support Division

(512) 239 - 0272 (For non-combustion units) - Chemical New Source Review Permits

Section, Air Permits Division

(512) 239 - 1583 (For combustion units) - Energy/Combustion New Sources Review Permits Section, Air Permits Division

(512) 239 - 0600 (For legal) - Environmental Law Division

(512) 239 - 6150 (For financial assurance) - Financial A
Operations Section, Financial Administration Division

(512) 239 - 0300 (For payment of permit application fe
Operations Section, Financial Administration Division

(512) 239 - 2201 (For compliance plan or corrective action) - Voluntary Cleanup Program/Corrective Action Section, Remediation Division

Application Review Prohibition:

The Texas Commission on Environmental Quality (TCEQ) shall not review an application for a new commercial hazardous waste facility, and the application shall be deemed not to have been received, until the emergency response information required by Section III.F. of the application has been reviewed and declared by TCEQ staff to be complete and satisfactory. [30 TAC 281.26, 30 TAC 305.50(a)(12)(C) and (D)]

Permit Issuance Prohibited [30 TAC 335.205]:

The TCEQ shall not issue a permit for:

1. a new hazardous waste management facility or an areal expansion of an existing facility if the facility or expansion does not meet the requirements of 30 TAC 335.204 (relating to Unsuitable Site Characteristics);
2. a new hazardous waste landfill or the areal expansion of an existing hazardous waste landfill if there is a practical, economic, and feasible alternative to such a landfill that is reasonably available to manage the types and classes of hazardous waste which might be disposed of at the landfill;
3. a new commercial hazardous waste management facility as defined in 30 TAC 335.202 (relating to Definitions) or the subsequent areal expansion of such a facility or unit of that facility if the owner/operator proposes to locate the boundary of the unit within 0.5 of a mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park;
4. a new commercial hazardous waste management facility that is proposed to be located at a distance greater than 0.5 mile (2,640 feet) from an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park unless the applicant demonstrates to the satisfaction of the commission that the facility will be operated so as to safeguard public health and welfare and protect physical property and the environment, at any distance beyond the facility's property boundaries;
5. a proposed hazardous waste management facility, or a capacity expansion of an existing hazardous waste management facility if a fault exists within 3,000 feet of the proposed hazardous waste management facility or of the capacity expansion of an existing hazardous waste management facility unless the applicant performs the demonstration found in 30 TAC 305.50(a)(4)(D) and 305.50(a)(10)(E) ; and

6. A proposed solid waste facility for the processing or disposal of municipal hazardous waste or industrial solid waste which is located within an area of a municipality or county in which the processing or disposal of municipal hazardous waste or industrial solid waste is prohibited by an ordinance or order. [Texas Health and Safety Code Section 363.112]

See 30 TAC 335 Subchapter G: Location Standards for Hazardous Waste Storage, Processing, or Disposal for additional details and information regarding items 1 through 5 above.

Prior to submitting a new permit application, please contact the TCEQ Permitting and Registration Support Division to obtain a Solid Waste Registration Number and an EPA Identification Number for inclusion in Section I.A. of this application. The facility's Solid Waste Registration Number may be proposed in Section I.A. as the Permit Number

This permit application form has been designed to solicit specific information, with reports to be attached or inserted. A response must be made for each informational request in the application form. If an item is not applicable please state "not applicable" and explain. All information included in the application must be listed by the format of the application. For example, if an engineering report is attached to the application to fulfill the requirements of Section V, then each subsection of the engineering report must correlate with the corresponding subsection in the application form (e.g., Subsection V.A.3. of the report would be proposed construction schedules). If information is provided which does not correspond with the application form, the specific rule or regulation which requires submittal of the information must be cited. Each report should be attached behind the summary form or table for the report and submitted as one document with the pages sequentially numbered at the bottom. Maps, bluelines, and drawings that cannot be folded to 8-1/2" x 11" may be submitted as separate documents. Engineering plans and specifications submitted with an application must be approved and sealed by a licensed Professional Engineer, with current license and designating the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act. Geology reports, geologic maps, and geologic cross-sections submitted with an application must be approved and sealed by a licensed Professional Geologist, with current license required by the Texas Geoscience Practice Act. Complete the tables in this application rather than substituting.

Facilities which will receive industrial and hazardous wastes from off-site sources must also provide information on these wastes and associated waste management units in accordance with 30 TAC 335.2.

In addition, the electronic checklist has been designed to facilitate the application preparation and review process, and should be completed and submitted along with applicable

For those who pre-filed a Part A application, certain items may have been omitted. These omissions must be addressed at this time. Additionally, if hazardous waste management methods have changed since the filing of the Part A, please provide an updated Part A.

Pursuant to Section 361.067 of the Texas Health and Safety Code, the TCEQ is required to mail a copy of this application or a summary of its contents to other regulatory agencies. Section I may be considered a summary of the entire application provided that all questions are completely answered. Therefore, Section I responses must not rely solely on cross-

If groundwater monitoring has detected the presence of hazardous constituents in the facility groundwater, the owner or operator must submit a Compliance Plan Application that is included as Section XI of this application. For more detailed instructions concerning a Compliance Plan, please see Section XI.

Submittal:

The complete application should be prepared using PDF and word processing. The third copy in the submittal package should consist of paper copies or PDF files of all surveys, reports, plot plans, diagrams, P&IDs, maps, etc., and a Compact Disk (CD) of the completed application form document and tables included in this application attachments. Files may be compressed using PKZIP Ver. 2 or a 100% compatible program. For Renewal, Amendment, and Modification applications, the PDF files should include both a finalized version and, where available, a redline/strikeout version clearly identifying all proposed changes from the existing permit. For revised application sections and incorporated documents where redline/strikeout versions are not available, submit a detailed listing of all proposed changes to the existing permit. In addition, the submitted electronic version of the application should be easily searchable during the review process by TCEQ staff.

1. an original updated Part A permit application plus three (3) full copies;
2. the original Part B application plus three (3) full copies (including the electronic
3. a check for payment of permit applicatio
   TCEQ Financial Administration Division;
4. Pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
5. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

For a new compliance plan or renewal of an existing compliance following in addition to the above:

1. Sections I and XI.A. through XI.E., as applicable;
2. Tables XI.A.I., XI.E.I through XI.E.III, and CP Tables I, II, V, VI through IX, are required; and CP Tables IIIA, IIIA, IV and IVA as applicable. The applicant should use the PDF formatted Tables provided in the Part B application to include site-specific information that will become part of the final draft permit; and
3. a Sampling and Analysis Plan (SAP) compliant with "Attachment A" requirements and evaluation of monitoring wells compliant with "Attachment B" well specification requirements.

For a post-closure care permit submit:

1. an original updated Part A permit application plus three (3) full copies;
2. the original Part B application (excluding Sections III B and F; IV A, C and D; VII A and B; VIII.B and C; and X) plus three (3) full copies;
3. a check for payment of permit application fees transmitted directly to the

TCEQ

4. pre-printed mailing labels of the adjacent landown
   list on Compact Disk (CD) in MS Word format; and
5. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

dments to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit
   copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I - Table I of the Part B plus replacement pages for the changed portions of the application that change as a result of the amendment;
3. an explanation of why the major amendment is needed;
4. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division;
5. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
6. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

For minor amendments to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I-Table I of the Part B plus replacement pages for the changed portions of the application that change as a result of the amendment;
3. an explanation of why the minor amendment is needed;
4. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division; and
5. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on diskette on Compact Disk (CD) in MS Word format.

For Class 3 modifications (including adding or revising a Compliance Plan) to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I - Table I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 3 modification is needed;

5. evidence of the public notice mailing and publication (after the public meeting, please submit a statement that the public meeting was held within the required timeframes);

   a. Evidence of public notice mailing to Adjacent Landowners requires submittal of copies of mail.

6. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division;
7. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
8. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

For Class 2 modifications to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I - Table I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 2 modification is needed;
5. evidence of the public notice mailing and publication (after the public meeting, please submit a statement that the public meeting was held within the required
6. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division; and
7. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on diskette on Compact Disk (CD) in MS Word format.

For Class 1[1] modifications to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I - Table I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 1[1] modification is needed;
5. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division; and
6. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive, for applications involving the partial transfer of some permitted waste management units.

difications to an issued hazardous waste permit, submit:

1. (if appropriate) an original updated Part A permit applicatio
   copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I - Table I of the Part B plus replacement pages for the changed

   portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 1 modification is needed; and
5. a check for payment of permit application fees transmitted dir
   TCEQ Financial Administration Division

If several modifications are submitted as one application, the application revi
at rate of the amendment or modification which has the longest timeframe.

Please submit any application revisions with a revised date and page numbers at the bottom of the page(s).

Waivers:

Any request for waiver of any of the applicable requirements of this permit application must be fully documented.

Designation of Material as Confidential:

The designation of material as confidential is frequently carried to excess. The Commission has a responsibility to provide a copy of each application to other review agencies and to interested persons upon request and to safeguard confidential material from becoming public knowledge. Thus, the Commission requests that the applicant (1) be prudent in the designation of material as confidential and (2) submit such material only when it might be essential to the staff in their development of a recommendation.

The Commission suggests that the applicant not submit confidential information as part of the permit application. However, if this cannot be avoided, the confidential information should be described in non-confidential terms throughout the application, cross-referenced to Section XIII: Confidential Material, and submitted as a separate Section XIII document or binder, and conspicuously marked "CONFIDENTIAL."

Reasons of confidentiality include the concept of trade secrecy and other related legal concepts which give a business the right to preserve confidentiality of business information to obtain or retain advantages from its right in the information. This includes authorizations under, 18 U.S.C. 1905 and special rules cited in 40 CFR Chapter I, Part 2, Subpart B. Section 361.037 of the Texas Health and Safety Code does not allow an applicant for an industrial solid waste permit to claim as confidential any record pertaining to the characteristics of the industrial solid waste.

The applicant may elect to withdraw any confidential material submitted with the application. However, the permit cannot be issued, amended, or modified if the application is incomplete.

In accordance with 30 TAC 305.50(a)(8) and 40 CFR 270.10(j), any Part B application submitted for a facility that stores, processes, or disposes of hazardous waste in a surface impoundment or a landfill (including post-closure) must be accompanied by exposure information of the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the unit. This exposure information is considered separate from the permit application, as stated in 40 CFR 270.10(c).

Pre-Application Meeting/Public Participation Activities [30 TAC 33
39.503]:

a. Applicant-held pre-application public meeting

   In accordance with 30 TAC 335.503(b) and 40 CFR Part 124.31(b)-(d), an applicant-held pre-application public meeting is required for the following application types prior to submitting the application to allow the applicant and the public to identify potential issues:

   - New applications;
   - Renewal applications with Class 3 Permit Modifications or Major Amendments; and
   - Major Amendment applications.

   The pre-application public meeting is not required for an application submitted for the sole purpose of conducting post-closure activities or post-closure activities and corrective action at a facility unless:

   - The application is also for an initial permit for hazardous waste management unit(s); or
   - The application is also for renewal of the permit, where the renewal application is proposing a significant change (Class 3 Permit Modification or Major Amendment) in facility operations (Note: per preamble to the related federal rule, the facility operations referenced herein exclude post-closure and corrective action activities).

b. Pre-application meeting with TCEQ

   Applicants are strongly encouraged to request a pre-application meeting with TCEQ Permits Section staff and to notify the Industrial and Hazardous Waste Permits Section, Waste Permits Division of intent to file new, renewal, Class 3 permit modification, major amendment, and other complex permit applications.

c. Pre-application local review

   In accordance with 30 TAC 335.391, for a new hazardous waste management facility, if a local review committee has been established to facilitate communication between the applicant and the local host community, the applicant should summarize the activities of the committee and submit this summary with the application. Any report completed

New industrial or hazardous waste facility that would accept municipal solid waste:

a. If an applicant proposes a new industrial or hazardous waste facility that would accept municipal solid waste, the applicant shall hold a public meeting in the county in which the facility is proposed to be located. This meeting must be held before the 45th day after the date the application is filed. In addition, the applicant shall publish notice of the public meeting in accordance with 30 TAC 39.503(e)(5).

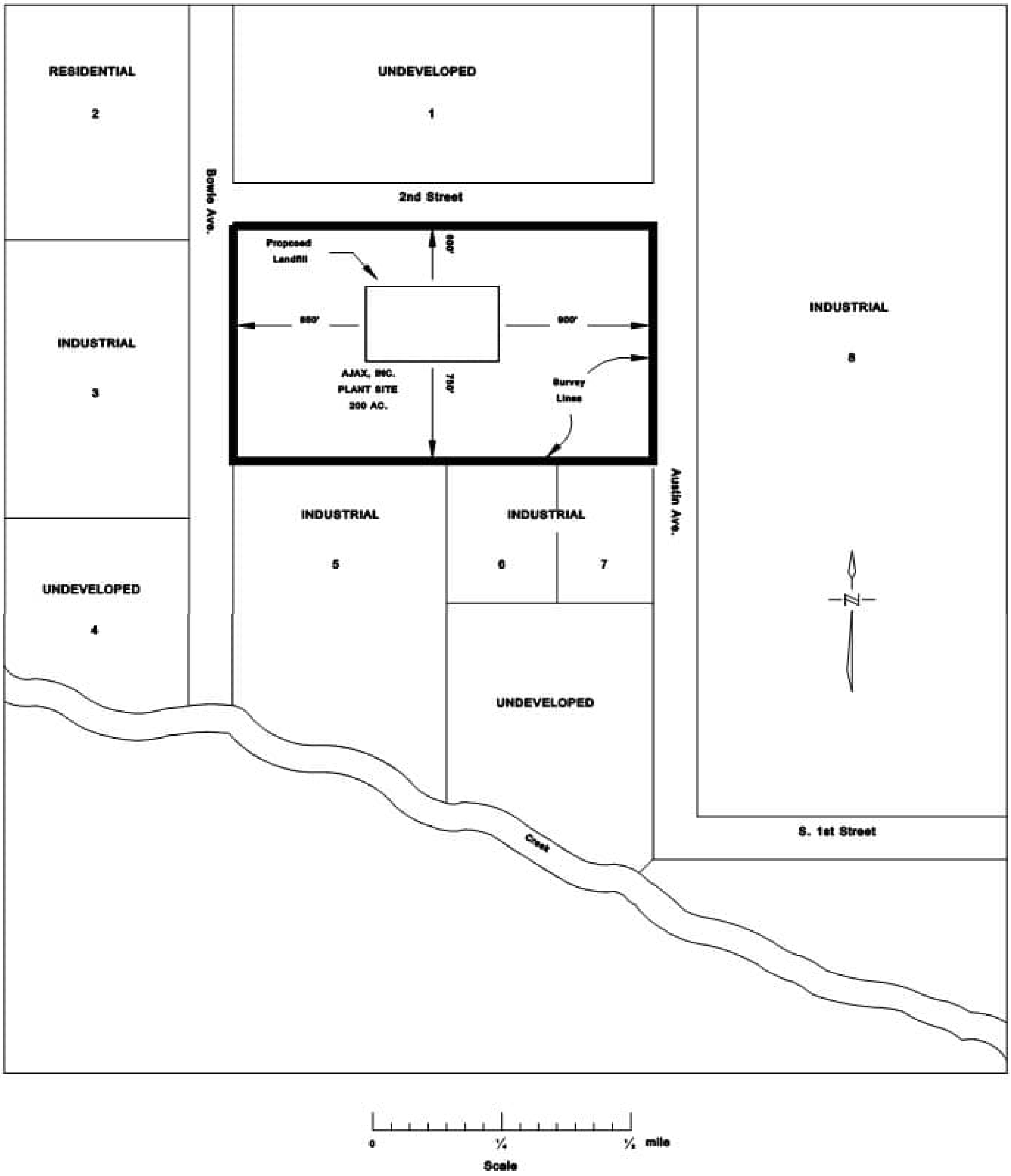
For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, requires a bilingual education program for an entire school district should the requisite alternative language speaking student population exist. However, there may not be any bilingual-speaking students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location to satisfy the school's obligation to provide such a program.

If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the

Complete and submit the Bilingual notice confirmation
notice confirmation can be downloaded from the Navigation Pane.

SAMPLE APPLICATION MAP

ALL ADJACENT LANDOWNERS SHALL BE IDENTIFIED



1. MR & MRS SAMUEL L TEXANS
11901 STARTLE BLVD
ATOWN TX 78759

2. MR & MRS EDWARD CITIZENS
1405 LINEAR ROAD
LITTLE TOWN TX 76710

3. TEXAS LINKED CORP
8411 NNW HWY
BIG PLACE TX 77590

4. MR & MRS TED GOLDEN MUSTARD
3210 AVENUE BLVD
FISHINSPOT TX 76724

5. GENERIC BREWING CO
4240 KNIGHTS BRIDGE
OUTBACK TX 77640

6. PLAIN COMPANY
6647 CRAIGMOUT LANE
BIG PLACE TX 77590

7. ABC CHEMICALS INC
1212 ZIP STREET
BROADBANKS TX 77640

8. BIG LOCAL BOTTLE CO
10024 LOCAL BLVD
URSINUS TX 79402

Adjacent Landowners List

Submit a map indicating the boundaries of all adjacent parcels of land, and a list (see samples in the instructions) of the names and mailing addresses of all adjacent landowners and other nearby landowners who might consider themselves affected by the activities described by this application. Cross-reference this list to the map through the use of appropriate keying techniques. The map should be a USGS map, a city or county plat, or another map, sketch, or drawing with a scale adequate enough to show the cross-referenced affected landowners. The list should be updated prior to any required public notice. It is the applicant's responsibility to ensure that the list is up-to-date for any required public notice. For all applications (with the exception of Class I and Class I[1] modifications) this mailing list should be submitted on:

1. a Compact Disk (CD) using software compatible with MS Word [
or
2.

If the adjacent landowners list is submitted on a compact disk (CD), please label the disk with the applicant's name and permit number. Within the file stored on the disk, type the permit number and applicant's name on the top line before typing the addresses. Names and addresses must be typed in the format indicated below. This is the format required by the U.S. Postal Service for machine readability. Each letter in the name and address must be capitalized, contain no punctuation, and the appropriate two-character abbreviation must be used for the state. Each entity listed must be blocked and spaced consecutively as shown below. The list is to be 30 names, addresses, etc. (10 per column) per page (MS WORD Avery Standard 5160 - ADDRESS template).

Example:

HEAVY METALS LP
PO BOX 85624
PUMPKIN PARK TX 79998-5624

MR AND MRS W R NEIGHBOURLY
1405 ACROSSTHE WAY
GREATER METRO CITY TX 79199

A list submitted on compact disk (CD) should be the only item on that disk. Please do not submit a list on a disk that includes maps or other materials submitted with your application.

If you wish to provide the list on printed labels, please use sheets of labels that have 30 labels to a page (10 labels per column) (for example: Avery® Easy Peel® White Address Labels for Laser Printers 5160). Please provide four complete sets of labels of the adjacent landowners list.

Complete the following form(s) as applicable, and submit with any industrial hazardous waste, or industrial solid waste, permit application that is subject to 30 Texas Administrative Code §39.405(k) [applications for a Class 3 permit modification, permit amendment, permit renewals, and for a new permit].

Plain Language Summary Form - English

Plain Language Summary Form - Instructions

Plain Language Summary Form - Spanish

PLAIN LANGUAGE SUMMARY FORMS

Texas Commission on Environmental Quality

Plain Language Summary

Industrial and Hazardous Waste Permit Applications

Instructions: Complete this form and submit with any industrial hazardous waste, or industrial solid waste, permit application that is subject to 30 Texas Administrative Code §39.405(k) [applications for a Class 3 permit modification, permit amendment, permit renewals, and for a new permit]. Please be concise.

Application Information

Purpose of application: ☐New ☒Renewal ☒Modification/Amendment

Date Submitted to TCEQ: July 2024

Customer Name: Texas Department of Criminal Justice

Facility Name: Ellis Unit

CN: 601550650	**RN:** 102315199
Permit Number: 50361	**Solid Waste Registration Number:** 71331

Facility Street Address: 1697 FM 980, Huntsville, Texas 77320-3314

Weblink to Street Address: https://www.google.com/maps/place/1697+FM+980,+Huntsville,+TX+77320/@30.879

Facility Information *(check all that apply)*

What is the primary type of business?	☐Chemical manufacturing plant ☐ Oil refinery ☐ Treatment, storage or disposal facility ☒Other **If other, enter description:** Correctional facility
What does the facility produce?	☐Chemicals ☐Fuels / lubricants ☒No products ☐Other **If other, enter description:**

Waste Management Information *(check all that apply)*

What types of wastes are managed?	☐Nonhazardous industrial ☒Hazardous ☐Other **If other, enter description:**
Where does the waste come from?	☐Off-site source ☒On-site source
How is the waste managed?	☐Storage ☐Process / Treatment ☐Disposal ☒Other **If other, enter description:** Permitted landfill
What type of units manage the waste?	☐Active ☒Post-Closure **Type and count:** Hazardous Waste Landfill, one
What happens to waste managed at the facility?	☐Transported off-site ☒Disposed on-site ☐Other **If other, enter description:**

Pollution Control Methods *(check all that apply)*

How will the facility prevent spills, leaks, and releases?	☒Routine inspections ☒Engineered liner systems ☐Spill containment ☐Proper waste handling ☐Operations in enclosed buildings ☐Groundwater monitoring ☐Other **If other, enter description:**
How will the facility clean up spills, leaks, and releases?	☐Spill clean-up supplies ☐Decontamination equipment ☒Other **If other, enter description:** Facility is in post-closure care. All waste has been properly disposed of in permitted landfill
How will the facility prevent / minimize air emissions?	☐Air monitoring / control systems ☐Filters / scrubbers ☐Routine inspections ☐Proper waste handling ☐Operations in enclosed buildings ☒Other **If other, enter description:** Not applicable.

Description of Update *(for Class 3 Modifications and Amendments only)*

List and explain any changes this modification or amendment would make to the two sections above—**Waste Management Information** and **Pollution Control Methods**.

The amendments would not make any changes to the waste management information or the pollution control methods.

Clear Form

Comisión de Calidad Ambiental de Texas

Resumen en Lenguaje Sencillo

Solicitudes de Permisos de Desechos Industriales y Peligrosos

Instrucciones

Complete este formulario y envíe con cualquier solicitud de permiso de desechos industriales peligrosos, o desechos sólidos industriales, que esté sujeta al Código Administrativo de Texas 30 §39.405 (k) [es decir, solicitudes para una modificación de permiso de Clase 3, enmienda de permiso, renovaciones de permisos y para un nuevo permiso]. Sea conciso: toda la información debe caber en dos páginas.

Información de la Solicitud

Propósito de la solicitud: ☐Nuevo ☒Renovación ☒Modificación/Enmienda

Sometido a TCEQ: Julio de 2024

Nombre del Cliente: Departamento de Justicia Penal de Texas

Nombre de la Instalación: Unidad Ellis

CN: 601550650	RN:102315199
Número de Permiso:50361	Número de Registro de Desechos Sólidos: 71331

Dirección de la Instalación: 1697 FM 980, Huntsville, Texas 77320-3314

Enlace Web a la Dirección Postal: https://www.google.com/maps/place/1697+FM+980,+Huntsville,+TX+77320/@30.879

Información de la Instalación *(marque todas lo que correspondan)*

¿Cuál es el tipo principal de negocio?	☐Planta de manufactura química ☐Refinería de aceite ☐ Instalación de tratamiento, almacenamiento o eliminación ☒Otro Si es otro, introduzca la descripción: Instalacion Correccional
¿Qué produce la instalación?	☐Químicos ☐Combustibles / lubricantes ☒Sin productos ☐Otro Si es otro, introduzca la descripción: Introduzca la descripción

Información sobre la Gestión de Desechos *(marque todas las que correspondan)*

¿Qué tipos de desechos se gestionan?	☐Industrial no peligroso ☒Peligroso ☐Otro Si es otro, introduzca la descripción: Introduzca la descripción
¿De dónde provienen los desechos?	☐Fuente externa ☒Fuente interna
¿Cómo se gestionan los desechos?	☐Almacenar ☐Procesar / Tratar ☐Eliminación ☒Otro Si es otro, introduzca la descripción: Vertedero permitido
¿Qué tipo de unidades gestionan los desechos?	☐ Activo ☒ Postcierre Teclee y cuente: Vertedero de residuos peligrosos, uno
¿Qué sucede con los desechos	☐Transportados fuera del sitio ☒Eliminado en el sitio ☐Otro Si es otro, introduzca la descripción:Introduzca la descripción

gestionados en la instalación?	

Métodos de Control de la Contaminación *(marque todos los que correspondan)*

¿Cómo evitará la instalación derrames, fugas y liberaciones?	☒Inspecciones de Rutina ☒Sistemas de revestimiento de ingeniería ☐Contención de derrames ☐Manejo adecuado de desechos ☐Operaciones en edificios cerrados ☐Monitoreo de aguas subterráneas ☐Otro Si es otro, introduzca la descripción: Introduzca la descripción
¿Cómo limpiará la instalación los derrames, fugas y liberaciones?	☐Suministros de limpieza de derrames ☐Equipos de descontaminación ☒Otro Si es otro, introduzca la descripción: La instalación se encuentra en fase de mantenimiento posterior al cierre. Todos los residuos se han eliminado adecuadamente en vertederos autorizados.
¿Cómo evitará / minimizará la instalación las emisiones atmosféricas?	☐Sistemas de monitoreo / control de aire ☐Filtros / depuradores ☐Inspecciones de rutina ☐Manejo adecuado de desechos ☐Operaciones en edificios cerrados ☒Otro Si es otro, introduzca la descripción: No Aplica

Descripción de la Actualización (*solo para Modificaciones y Enmiendas de Clase 3)*

Liste y explique cualquier cambio que esta modificación o enmienda haría a las dos secciones anteriores: Información de Gestión de Desechos y Métodos de Control de la Contaminación.

Las enmiendas no introducirán cambios en la información sobre la gestión de residuos ni en los métodos de control de la contaminación.

PART B CHECKLIST

Item No.	Section	Remove Filters Description (blue shaded items are part of Permit Administrative Review)	HW Regulations (305 & 335 are State & 260-270 are Federal)	Submitted?	Information Change Since Last Permit Action Submittal?	Location of Information (provide exact page no. and section)	Comments or Variance
1	I.	General Information				Section I Forms and Appendices	
2	I.A.	Applicant: Facility Operator (or Facility Owner & Operator, if same)	305.43; 305.45(a)(1); 270.10(a)(b)			Section I Forms and Appendices	
3	I.A.*1.*	Ensure legal name matches Secretary of State database		Yes	No	Table 1 Pg 1	Same applicant name submitted with multiple renewals and mods
4	I.A.*2.*	Provide facility's physical address, and business address if different from physical		N/A	N/A	N/A	Not applicable
5	I.A.*3.*	Provide facility telephone number		Yes	Yes	Table 1 Pg 1	Updated contact information to Jason Pierce
6	I.A.*4.*	Provide Solid Waste Registration Number and EPA I.D.		Yes	No	Table 1 Pg 1	
7	I.A.*5.*	Provide Regulated Entity Name and Regulated Entity Number from Chief Clerk's database		Yes	No	Table 1 Pg 1	
8	I.A.*6.*	Provide Customer Name and Customer Number from Chief Clerk's database		Yes	No	Table 1 Pg 1	Same customer name submitted with multiple renewals and mods
9	I.A.*7.*	Provide Charter Number from Secretary of State database		N/A	N/A	N/A	Not applicable
10	I.B.	Provide Facility Owner if different than the Facility Operator, mailing address and telephone number	305.43(b); 361.087 (TX Health & Safety Code)	N/A	N/A	N/A	Not applicable
11	I.C.	Facility Contact	305.45(a)				Updated contact information to Jason Pierce
12	I.C.1.	Provide primary contact information (mailing address and telephone number)		Yes	Yes	Table 1 Pg 2	Updated contact information to Jason Pierce
13	I.C.2.	If applicable, register with the Texas Secretary of State office and provide mailing address		N/A	N/A	N/A	Not applicable
14	I.C.3.	Provide contact information (mailing address, telephone number, fax number, and e-mail address if available) for person responsible for public notice		Yes	Yes	Table 1 Pg 2	Updated contact information to Jason Pierce
15	I.C.4.	Provide public place (name and physical address) in the county where application will be made available for review		Yes	No	Table 1 Pg 2	
16	I.C.5.	If the applicant is proposing a new industrial or hazardous waste (HW) facility, they must hold a public meeting in the county in which the facility is proposed to be located and publish notice of the meeting				N/A	Not applicable
17	I.D.	Application Type and Facility Status	305.42; 305 subchapter D			Table 1 Pg 3	
18	I.D.1.	Select all applicable categories of application type and facility status		Yes	No	Table 1 Pg 3	
19	I.D.2.	Indicate whether the application is part of a Consolidated Permit Processing request		No	No	Table 1 Pg 3	
20	I.D.3.	Indicate if confidential information is included		No	No	Table 1 Pg 3	
21	I.D.4.	Select all items that apply for either a proposed or existing hazardous waste management facility		Yes	No	Table 1 Pg 3	
22	I.D.5.	Indicate whether the facility is within the Coastal Management Program boundary		No	No	Table 1 Pg 3	
23	I.D.6.	Provide a description of all changes requested in the application		Yes	Yes	Table 1.1	Updating Table VI.B.3.C (updating concentration limits, groundwater sampling frequency, and reduction in constituents) and Appendix B.VII.C (annual benchmark surveying requirement)
24	I.D.7.	Provide total acreage of the facility being permitted		Yes	No	Table 1 Pg 3	
25	I.D.8.	Provide name of drainage basin and segment where facility is located		Yes	No	Table 1 Pg 4	
26	I.E.	Facility Siting Summary				Table 1 Pg 4	
27	I.E.1.	Indicate whether the facility is located within a 100-yr floodplain	335.204(a)(1); 270.14(b)(11)(iii)	Yes	No	Table 1 Pg 4	
28	I.E.2.	Indicate whether the facility is located in wetlands	335.204(a)(2)	No	No	Table 1 Pg 4	
29	I.E.3.	Indicate whether the facility is located in the critical habitat of an endangered species of plant or animal	335.204(a)(8)	No	No	Table 1 Pg 4	
30	I.E.4.	Indicate whether the facility is located on the recharge zone of a sole-source aquifer	335.204(a)(3)	No	No	Table 1 Pg 4	

31	I.E.5.	Indicate whether the facility is located in an area overlying a regional aquifer	335.204(a)(4)	No	No	Table 1 Pg 4	
33	I.E.7.	Indicate whether the facility is in an area in which governing body and municipality has prohibited the processing of municipal HW and individual solid waste	361.095; 361.096; 361.0961 (TX. Health & Safety Code)	No	No	Table 1 Pg 4	
34	I.F.	Wastewater and Stormwater Disposition: If yes, indicate existing or proposed discharge permit number	30 TAC305(a)(7) WDW, TPDES, TCEQ	No	No	N/A	Not applicable
35	I.F.1.	Indicate whether waste disposal is to be accomplished by a waste disposal well. If yes, list all of the WDW permit numbers		No	No	Table 1 Pg 4	
36	I.F.2.	Indicate whether point source discharge of effluent or rainfall runoff occur as a result of the proposed activities		No	No	Table 1 Pg 4	
37	I.F.3.	If discharge of effluent or rainfall runoff occurs and the discharge is regulated by a TPDES or TCEQ permit, provide the corresponding permit numbers		N/A	N/A	N/A	Not applicable
38	I.F.4.	If discharge of effluent or rainfall runoff occurs and it is not regulated by a TPDES or TCEQ permit, provide the date on which those permit applications were filed		N/A	N/A	N/A	Not applicable
39	I.G.	Information required to provide notice:				Section I Forms and Appendices	
40	I.G.*1.*	Provide state officials list	30 TAC 39.103(b)	Yes	Yes	Table 1 Pg 4-5	Updated State Oficials list
41	I.G.*2.*	Provide local officials list	30 TAC 39.103(c)	Yes	Yes	Table 1 Pg 4-5	Updated Local officials list
42	I.G.*3.*	Provide adjacent landowners list: submit landowners map and mailing list in proper format (CD or Printed Labels, 30 addresses per/page in 3 columns of 10, USPS Machine Readable format)	305.45(a)(6)(A-D)	Yes	Yes	Appendix I to Section I	
43	I.G.*4.*	Indicate if Bilingual Notice is required		Yes	No	Appendix I	
44	I.H.	Provide a current Core Data form		Yes	Yes	Appendix I to Section I	Updated contact information to Jason Pierce
45	I.I.	Provide an original signature on application with proof of authorization and notary seal	305.44; 270.11	Yes	Yes	Appendix I to Section I	
46	II.	Facility Siting Criteria				Section II Forms and Appendices	
47	II.A.	Indicate whether the facility is located or proposed to be located in:				Section II Forms and Appendices	
48	II.A.1.	Wetlands; Provide the source of information; If yes, the TCEQ shall not issue a permit for a new hazardous waste (HW) management facility or areal expansion per 335.205(a)(1)	335.204(a)(2), (b)(2), (c)(2), (d)(2), and/or (e)(2)	Yes	No	Table II Pg 1	
49	II.A.2.	Critical habitat; Provide a letter from Texas Parks and Wildlife Department; If yes, Section V should include information to demonstrate the design, construction, and operational features of the facility will prevent adverse effects resulting from a release in such areas	335.204(a)(8), (b)(10), (c)(9), (d)(9), and/or (e)(11)	Yes	No	Table II Pg 1	
50	II.A.3.	On the recharge zone of a sole-source aquifer; Provide the source of information; If yes, submit Section V information to demonstrate adequate secondary containment - hazardous waste units such as landfills, land treatment facilities, surface impoundments and waste piles cannot be located on the recharge zone of a sole-source aquifer	335.204(a)(3), (b)(3), (c)(3), (d)(3) , and/or (e)(3)	Yes	No	Table II Pg 1	
51	II.A.4.	An area overlying a regional aquifer; Provide the source of information; If facility overlies a regional aquifer, information should be provided either in Section V, to address the requirements of 335.204(a-e)(4)(B), or in Section VI, to address the requirements of 335.204(a-e)(4)(A)	335.204(a)(4), (b)(4), (c)(4), (d)(4), and/or (e)(4)	Yes	No	Table II Pg 1	
52	II.A.5.	Areas where soil unit(s) within 5 ft. of containment structure, or treatment zone that have unified soil classification of GW, GP, GM, GC, SW, SP, or SM, or hydraulic conductivity greater than 10-5 cm/sec; Provide the source of information; If the facility overlies soils meeting these characteristics, information should be provided either in Section V, to address the requirements of 335.204(5)(A) or Section VI, to address the requirements of 335.204(5)(B)	335.204(a)(5), (b)(5), (c)(5), (d)(5), and/or (e)(5)	Yes	No	Table II Pg 1	
53	II.A.6.	Areas of direct drainage within one mile of a lake at its maximum conservation pool level; Provide verification of drainage information	335.204(a)(6), (b)(7), (c)(6), (d)(6), and/or (e)(8)	Yes	No	Table II Pg 1	

54	II.A.7.	Areas of geologic process, including but not limited to erosion, submergence, subsidence, faulting, karst formation, flooding in alluvial flood wash zones, meandering river bank cuttings, or earthquakes; Provide verification of geologic process information	335.204(a)(7), (b)(8), (c)(7), (d)(7), and/or (e)(9)	Yes	No	Table II Pg 2	
55	II.A.8.	Within 30 feet of the upthrown side or 50 feet of the downtown side of the actual or conferred expression of a fault; Provide the source of information	335.204(a)(9), (b)(12), (c)(11), (d)(11), and/or (e)(13)	Yes	No	Table II Pg 2	
69	II.E.	Additional requirements of landfills (and surface impoundments closed as landfills with waste in place):	335.204(e)			Table II	
70	II.E.1.	Indicate whether the landfill is located or proposed to be located within 1000 ft. established residence, school, church, school, daycare center, etc.; If yes, permit will not be issued for a new HW landfill unit or an areal expansion of an existing landfill unit	335.204(e)(6)	Yes	No	Table II Pg 6	
71	II.E.2.	For the new commercial HW landfill, indicate whether it is proposed to be located in 100-yr floodplain; If yes, permit will not be issued for a new commercial HW landfill or an areal expansion of an existing landfill per 335.204(e)(7) and 335. 205(a)(1)	335.204(e)(7)	Yes	No	Table II Pg 6	
72	II.E.3.a.	Indicate whether the landfill is located or proposed to be located within 1000 ft. of an area subject to active shoreline erosion protected by barrier island or peninsula; If yes, Section V.G must include information to address the adverse effects	335.204(e)(10)	Yes	No	Table II Pg 6	
73	II.E.3.b.	Indicate whether the landfill is located or proposed to be located within 5000 ft. of an area subject to active coastal shoreline unprotected by barrier island or peninsula; If yes, Section V.G must include information to address the adverse effects	335.204(e)(10)	Yes	No	Table II Pg 6	
74	II.E.4.	Indicate whether the landfill is located or proposed to be located on a barrier island or peninsula; If yes, permit will not be issued for a new HW landfill unit or an areal expansion of an existing landfill unit	335.204(e)(12); 335.205(a)(1)	Yes	No	Table II Pg 6	
75	II.F.	Flooding: Include FIA maps and source of data in the application	270.14(b)(11)(iii); 305.50(a)(11)	Yes	No	Table II Pg 6	
76	II.F.1.	Indicate whether the facility is located or proposed to be located within 100-yr Floodplain; If yes, complete II.F.2-4, providing supporting documentation; Note: For an application for a proposed HW management facility, aside from the flood plain maps prepared by FEMA, additional information may be necessary for a flood plain determination; If no, do not complete II.F.2-4	270.14(b)(11)(iii)	Yes	No	Appendix II.F	
77	II.F.2.	Provide information defining the 100-year Flood levels	270.14(b)(11)(iii)	Yes	No	Appendix II.F	
78	II.F.3.	Indicate whether Flood Protection devices or structures are provided or proposed at the facility:	270.14(b)(11)(iv)	Yes	No	Appendix II.F	
79	II.F.3.a.	If yes, submit Section V an engineering analysis to indicate the hydrodynamic and hydrostatic per 270.14(b)(11)(iv)(A), and	270.14(b)(11)(iv)	Yes	No	Appendix II.F	
80	II.F.3.b.	Provide in Section V a plan and schedule for constructing flood protection devises per 270.14(b)(11)(iv)(B)	270.14(b)(11)(iv)	N/A	N/A	N/A	Not applicable - already constructed
81	II.F.3.c.	NOTE: Any landfill, storage/treatment facility, surface impoundment, waste pile, or land treatment unit within the 100-year floodplain must be designed, constructed, operated, and maintained to prevent physical transport of any HW by a 100-year flood event.	335.204(a)(1), (b)(1), (c)(1), (d)(1), and/or (e)(1)				
82	II.F.4.	If the answer to Question II.F.3 is No, provide a description of the procedures to remove wastes to safety before flooding occurs:	270.14(b)(11)(iv)(C)	N/A	N/A	N/A	Not applicable
83	II.F.4.a.	Timing of movement of wastes relative to flood levels	270.14(b)(11)(iv)(C)(1)	N/A	N/A	N/A	Not applicable
84	II.F.4.b.	Location to which wastes will be moved and a demonstration that these facilities will be eligible to receive HW	270.14(b)(11)(iv)(C)(2)	N/A	N/A	N/A	Not applicable
85	II.F.4.c.	Procedures and availability of equipment and personnel to be used	270.14(b)(11)(iv)(C)(3)	N/A	N/A	N/A	Not applicable
86	II.F.4.d.	Potential and prevention for accidental discharges of waste	270.14(b)(11)(iv)(C)(4)	N/A	N/A	N/A	Not applicable
87	II.G.	Additional information requirements				Appendix II.G	
88	II.G.1.	For a new HW management facility, provide a legible map of local land-use plans and major routes of travel covering at least 5 miles from the facility	305.50(a)(10)(A) & (D)	N/A	N/A	N/A	Not applicable - not a new HW management facility

89	II.G.2.	For a new commercial HW management facility or the subsequent areal expansion of the facility or facility unit, provide a map showing the nearest established residence, schools, church, day care center, surface water body used for a public drinking water supply, and dedicated park	305.45(a)(6), 335.202, 335.204(a)(6), (b)(6) and (7), (c)(6), (d)(6), &/or (e)(6 and 8)	N/A	N/A	N/A	Not applicable - not a new HW management facility
94	II.G.4.	Provide the name and location of other HW facilities within 0.5 miles of the new on-site HW management facility and the quantity of HW generated or received annually at those facilities	305.50(a)(10)(B-C)	N/A	N/A	N/A	Not applicable - not a new HW management facility
95	II.G.5.	Provide the name and location of HW facilities within 1.0 mile of the new commercial HW management facility and the quantity of HW generated or received annually at those facilities	305.50(a)(10)(B-C)	N/A	N/A	N/A	Not applicable - not a new HW management facility
96	II.G.6.	For existing/proposed HW disposal units, provide documentation of deed recordation	335.5; 270.14(b)(14)	Yes	No	Section II.G.6 Response	
97	II.G.7.	If a surface impoundment or landfill (including post-closure) is permitted, provide exposure information; This information will be considered separately from TCEQ application completeness determination	305.50(a)(8) 270.10(j)	Yes	No	Section II.G.7 Response	
98	II.G.8.	For a new HW management facility or a capacity expansion of an existing HW management facility, provide Section VI.A.1.a	305.50(a)(4)(D) 305.50(a)(10)(E)	N/A	N/A	N/A	Not applicable
99	III.	Facility Management				Appendix III.A	
100	III.A.	Compliance History and Applicant Experience:				Appendix III.A	
101	III.A.1.	Provide listings of all solid waste management sites in Texas owned, operated, or controlled by the applicant	305.50(a)(2)	Yes	No	Appendix III.A	
102	III.A.2.	For a new commercial hazardous waste (HW) management facility, provide a summary of the applicant's experience in HW management	305.50(a)(12)(F)	N/A	N/A	N/A	facility is not new
109	III.C.	Security:				Appendix III.C	
110	III.C.*1.*	Provide a description of how the facility complies with security requirements:	264.14	Yes	No	Appendix III.C	
111	III.C.*1.a.*	24-hr surveillance system	264.14(b)(1)	Yes	No	Appendix III.C	
112	III.C.*1.b.*	Artificial or natural barrier	264.14(b)(2)(i)	Yes	No	Appendix III.C	
113	III.C.*1.c.*	Means to control entry	264.14(b)(2)(ii)	Yes	No	Appendix III.C	
114	III.C.*1.d.*	Warning signs	264.14(c)	Yes	No	Appendix III.C	
115	III.C.*1.e.*	Demonstration that the previous security items are not needed to prevent contact or disturbance of waste	264.14(a)	Yes	No	Appendix III.C	
116	III.D.	Inspection Schedule	264.15; 264.33				
117	III.D.*1.*	Complete and submit Table III.D. - Inspection Schedule in hard copy and editable electronic format; Table must show:		Yes	Yes	Table III.D	Requesting modification of benchmark surveying from annual to every five years
118	III.D.*1.a.*	Inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment, etc.	264.15(b)(1)	Yes	No	Appendix III.D	
119	III.D.*1.b.*	Types of problems expressed as deficiencies indicating a need for corrections and/or repairs	264.15(b)(3)	Yes	No	Appendix III.D	
120	III.D.*1.c.*	Frequency of inspections	264.15(b)(4)	Yes	Yes	Appendix III.D	Requesting modification of benchmark surveying from annual to every five years
121	III.D.*1.d.*	Areas subject to spills (i.e., loading and unloading areas) must be inspected daily when in use	264.15(b)(4)	Yes	No	Appendix III.D	
122	III.D.*1.e.*	Specific process inspection requirements & remedies	264.15(c)	Yes	No	Appendix III.D	
123	III.D.*1.f.*	Testing and maintenance of equipment; & Sample of inspection log form	264.15(d); 264.33	Yes	No	Appendix III.D	
162	III.D.*1.l.*	LANDFILL INSPECTION: (weekly and after storms)	264.303(b)	Yes	No	Appendix III.D	
163	III.D.*1.l.1.*	Deterioration, malfunctions, or improper operation of run-on and run-off control systems	264.303(b)(1)	Yes	No	Appendix III.D	
164	III.D.*1.l.2.*	Wind dispersal control system	264.303(b)(2)	Yes	No	Appendix III.D	

165	III.D.*1.l.3.*	Leachate collection and removal system inspected for presence of leachate and proper function	264.303(b)(3)	Yes	No	Appendix III.D	
166	III.D.*1.l.4.*	Amount of liquids removed from each leak detection system sump recorded and pump operating levels meet permit specified values	264.303(c)	Yes	No	Appendix III.D	
235	IV.	Wastes and Waste Analysis				Section IV Forms and Appendices	
238	IV.B.	Complete and submit Table IV.B. - Waste Managed In Permitted Units in hard copy and editable electronic format	335.501-335.515; 261.21-261.24; 261.30-261.33	Yes	No	Table IV.B	
280	V.	Engineering Reports				Appendix V.A and Appendix V.D	
296	V.A.	A. General Engineering Reports				Appendix V.A	
297	V.A.1.	General Information:				Appendix V.A	
298	V.A.1.*a.*	Complete and submit Table V.A - Facility Waste Management Handling Units in hard copy and editable electronic format		Yes	No	Table V.A	
299	V.A.1.*b.*	Submit an overall plan view at an appropriate scale to show the location of all HW management units on 8 1/2" x 14" sheets in hard copy and editable electronic format, including the following:	305.45(a)(6)	Yes	Yes	Part A, Attachment C	Updated with 2024 topography and replacement monitoring well locations
300	V.A.1.*b.1.*	Each body of water in the state within map area	305.45(a)(6)(A)	Yes	Yes	Part A, Attachment C	
301	V.A.1.*b.2.*	General character of areas adjacent to facility	305.45(a)(6)(B)	Yes	No	Part A, Attachment C	
302	V.A.1.*b.3.*	Location of waste disposal activities conducted on tract but not included in application	305.45(a)(6)(C)	Yes	No	Part A, Attachment C	
303	V.A.1.*b.4.*	Ownership of tracts of land adjacent to facility and within reasonable distance from proposed or existing place of disposal or activity	305.45(a)(6)(D)	Yes	No	Part A, Attachment C	
304	V.A.1.*b.5.*	Other information that may be requested by the executive director	305.45(a)(6)(E)	Yes	No	Part A, Attachment C	
305	V.A.1.*c.*	Submit topographic map(s) showing the facility boundary and a distance of 1,000 ft. around it, having a scale of 1 inch equal to not more than 200 feet; The map must clearly show:	270.14(b)(19)	Yes	Yes	Part A, Attachment C	Updated with 2024 topography and replacement monitoring well locations
306	V.A.1.*c.1.*	scale and date	270.14(b)(19)(i)	Yes	Yes	Part A, Attachment C	Updated with 2024 topography and replacement monitoring well locations
307	V.A.1.*c.2.*	100-yr flood plain area	270.14(b)(19)(ii)	Yes	No	Appendix II.F	
308	V.A.1.*c.3.*	surface waters (including intermittent streams and drainage ditches)	270.14(b)(19)(iii)	Yes	No	Part A, Attachment C	
309	V.A.1.*c.4.*	surrounding land uses	270.14(b)(19)(iv)	Yes	No	Part A, Attachment C	
310	V.A.1.*c.5.*	wind rose (may be submitted in a separate sheet)	270.14(b)(19)(v)	Yes	No	Part A, Attachment C	
311	V.A.1.*c.6.*	orientation of the map (north arrow)	270.14(b)(19)(vi)	Yes	No	Part A, Attachment C	
312	V.A.1.*c.7.*	legal boundaries of the HWM facility	270.14(b)(19)(vii)	Yes	No	Part A, Attachment B	
313	V.A.1.*c.8.*	access control or surveillance equipment	270.14(b)(19)(viii)	Yes	No	Part A, Attachment C	
314	V.A.1.*c.9.*	injection and withdraw wells both on-site and off-site	270.14(b)(19)(ix)	Yes	No	Part A, Attachment C	
315	V.A.1.*c.10.*	buildings	270.14(b)(19)(x)	Yes	No	Part A, Attachment C	
316	V.A.1.*c.11.*	treatment, storage or disposal operations	270.14(b)(19)(x)	Yes	No	Part A, Attachment C	
317	V.A.1.*c.12.*	recreation areas	270.14(b)(19)(x)	Yes	No	Part A, Attachment C	
318	V.A.1.*c.13.*	run-off control system	270.14(b)(19)(x)	Yes	No	Appendix V.A	

319	V.A.1.*c.14.*	access and internal roads	270.14(b)(19)(x)	Yes	No	Appendix V.A	
320	V.A.1.*c.15.*	storm, sanitary, and process sewerage system	270.14(b)(19)(x)	Yes	No	Appendix V.A	
321	V.A.1.*c.16.*	loading and unloading areas	270.14(b)(19)(x)	Yes	No	Appendix V.A	
322	V.A.1.*c.17.*	fire control facilities	270.14(b)(19)(x)	Yes	No	Appendix V.A	
323	V.A.1.*c.18.*	barriers for drainage or flood control	270.14(b)(19)(xi)	Yes	No	Appendix V.A	
324	V.A.1.*c.19.*	location and outline of operational units	270.14(b)(19)(xii)	Yes	No	Appendix V.A	
325	V.A.1.*c.20.*	Additional information requirements found on topographic maps: (If any of the following information has been submitted as part of the GW Monitoring Report in Section VI, provide a reference to it here)		Yes	No	Appendix V.A	
326	V.A.1.*c.20.a.*	identification of the uppermost aquifer	270.14(c)(2)	Yes	No	Appendix V.A	
327	V.A.1.*c.20.b.*	delineation of the waste management units	270.14(c)(3)	Yes	No	Appendix V.A	
328	V.A.1.*c.20.c.*	property boundary	270.14(c)(3)	Yes	No	Appendix V.A	
329	V.A.1.*c.20.d.*	proposed “Point of Compliance” as defined under 264.95	270.14(c)(3)	Yes	No	Appendix V.A	
330	V.A.1.*c.20.e.*	proposed location of GW monitoring wells as required under 264.97	270.14(c)(3)	Yes	No	Appendix V.A	
331	V.A.1.c.*21.*	Information requirements for SWM units: (If any of the following information has been submitted as part of the Preliminary Review Checklist, provide a reference to it here)	270.14(d)(1)	Yes	No	Appendix V.A	
332	V.A.1.*c.21.a.*	location of the unit on a topographic map	270.14(d)(1)(i)	Yes	No	Appendix V.A	
333	V.A.1.*c.21.b.*	designation of type of unit	270.14(d)(1)(ii)	Yes	No	Appendix V.A	
334	V.A.1.*c.21.c.*	general dimensions and structural description	270.14(d)(1)(iii)	Yes	No	Appendix V.A	
335	V.A.1.*c.21.d.*	when unit was operated	270.14(d)(1)(iv)	Yes	No	Appendix V.A	
336	V.A.1.*c.21.e.*	specification of wastes that have been managed at the unit, to the extent available	270.14(d)(1)(v)	Yes	No	Appendix V.A	
337	V.A.2.	Provide design, construction, and operational information of features to mitigate unsuitable site characteristics where applicable (information covered under Sections I.E & II.F) as specified in the rules	335.204(a)(1, 3-9); 335.204(b)(1, 4-5, 7-10, 12); 335.204(c)(1, 4-9, 11); 335.204(d)(1, 4-9, 11); 335.204(e)(1, 4-5, 8-11, 13)	Yes	No	Appendix V.A	
341	V.A.4.	Provide detailed plans and specifications individually sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm’s name and Registration Number; Note: For applications subject to post-closure only, submittal of as-built plans and specifications for the final cover system, individually for the unit and sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm’s name and Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request	270.14; 305.50(a)(7)	Yes	Yes	Appendix V.A	
654	V.G.	Landfills	335.152(a)(12); 264 subpart N			Appendix V.G	
655	V.G.~.	Submit a Landfill Engineering Report, including at a minimum:	305.50(a)(5); 270.21	Yes	No	Appendix V.G	

663	V.G.1.	Complete and submit Table V.G.1. - Landfills in hard copy and editable electronic format		Yes	Yes	Table V.G.1	Was submitted in previous renewal as not applicable
669	V.G.6.a.	Complete and submit Tables V.G.3 - Landfill Liner System and V.G.4 - Landfill Leachate Collection System in hard copy and editable electronic format		No	No	N/A	Not submitted - was not applicable with previous renewal
1175	VI.	Geology Report				Appendix VI.A, VI.B, and VI.C	
1176	VI.~.	Submit all geoscience work signed and dated by a licensed professional geoscientist with current Texas registration along with the Registered Geoscience Firm's name and Registration Number	Texas Geoscience Practice Act and 22 TAC 851 Subchapter D; 305.50(a)(4)(D); 305.50(a)(6); 305.50(b)(6)	Yes	No	Appendix VI.A, VI.B, and VI.C	
1177	VI.A.	Geology and Topography				Appendix VI.A	
1178	VI.A.1.	Provide description of active geologic processes:		Yes	No	Appendix VI.A	
1179	VI.A.1.a.~.	Submit or address Identification of faults, active potentially active or inactive:		Yes	No	Appendix VI.A	
1180	VI.A.1.a.~.*a.*	Holocene sediments or man-made structures have been displaced		Yes	No	Appendix VI.A	
1181	VI.A.1.a.~.*b.*	Describe techniques used to identify faults		Yes	No	Appendix VI.A	
1182	VI.A.1.a.~.*c.*	Zones of significant surface deformation		Yes	No	Appendix VI.A	
1183	VI.A.1.a.~.*d.*	Effects of active faults on potential for waste migration		Yes	No	Appendix VI.A	
1184	VI.A.1.a.~.*e.*	Clearance from active fault to ensure liners will not be disrupted		Yes	No	Appendix VI.A	
1185	VI.A.1.a.	For capacity expansion of an existing hazardous waste (HW) facility, submit or address:	305.50(a)(4)(D); 305.50(a)(10)(E)	Yes	No	Appendix VI.A	
1186	VI.A.1.a.1.	Geologic literature review (should include maps of surface faults, subsurface structure maps, field investigations, etc.)		Yes	No	Appendix VI.A	
1187	VI.A.1.a.2.	Descriptions and maps of faulting, fracturing, and lineations in the area		Yes	No	Appendix VI.A	
1188	VI.A.1.a.3.	Constructed maps and cross-sections of the area, using surface data i.e., surface faults, gas seeps, linerations, etc. A surface structure map should also be included		Yes	No	Appendix VI.A	
1189	VI.A.1.a.4.	Minimum of 2 structural X-sections that show geologic units which show Holocene sediments underground sources of drinking water, and lithology, and on a scale to depict the local geology within 3000' of the location. Cross sections should cross at the unit location		Yes	No	Appendix VI.A	
1190	VI.A.1.a.5.	Minimum of 2 structural subsurface maps; one should be made on the shallowest mapable subsurface marker, the other made on a deeper horizon		Yes	No	Appendix VI.A	
1191	VI.A.1.a.6.	Field surveillance; to check for potential faults/lineations indicated by aerial photos, topographic maps, seismic/subsurface maps, etc.		Yes	No	Appendix VI.A	
1192	VI.A.1.a.7.	Any additional information in defining the geology of the area, such as seismic data, isopachs, potentiometric surface maps, etc.		Yes	No	Appendix VI.A	
1193	VI.A.1.a.8.	Demonstration that a fault within 3000 ft. of location has not had displacement with Holocene times. If such a fault exists, cannot pass within 200 feet of surface unit		Yes	No	Appendix VI.A	
1194	VI.A.1.a.9.	If fault that has been active within Holocene and is located within 3000 ft., it must be demonstrated that: the fault is not transmissive and will not allow groundwater movement; and that there is no potential for subsidence that may endanger the stability of the surface unit		Yes	No	Appendix VI.A	
1195	VI.A.1.b.	A discussion of the extent of land surface subsidence in the vicinity of the facility including total recorded subsidence and past and projected rates subsidence. For facilities at low elevations along the coast, address the rates of subsidence and potential for future submergence beneath Gulf water		Yes	No	Appendix VI.A	
1196	VI.A.1.c.	Provide a discussion to which the facility is subject to erosion such as over-land flow, channeling, gullying, other fluvial processes, and shoreline erosion		Yes	No	Appendix VI.A	
1197	VI.A.1.d.	Complete and submit Table VI.A.1 - Major Geologic Formations in hard copy and editable electronic format		Yes	No	Table VI.A.1	

1198	VI.A.2.	Provide a description as applicable of Regional Physiography and Topography (applicable for land base units, except waste piles exempt from GW monitoring requirements, and tanks which require contingent post-closure plan):		Yes	No	Appendix VI.A	
1199	VI.A.2.a.	Distance and direction to nearest surface water body		Yes	No	Appendix VI.A	
1200	VI.A.2.b.	Slope of land surface		Yes	No	Appendix VI.A	
1201	VI.A.2.c.	Direction of slope		Yes	No	Appendix VI.A	
1202	VI.A.2.d.	Maximum elevation of facility		Yes	No	Appendix VI.A	
1203	VI.A.2.e.	Minimum elevation of facility		Yes	No	Appendix VI.A	
1204	VI.A.3.	Provide a description as applicable of Regional Geology (applicable for land base units, except waste piles exempt from GW monitoring requirements, and tanks which require contingent post-closure plan). Description of the regional geology of the area should include:		Yes	No	Appendix VI.A	
1205	VI.A.3.a.	A geologic map with text describing stratigraphic and lithologic properties		Yes	No	Appendix VI.A	
1206	VI.A.3.b.	A description of generalized stratigraphic column from the base of lowermost groundwater to surface (at least 1,000 ft.) The description for each geologic unit should include:		Yes	No	Appendix VI.A	
1207	VI.A.3.b.*1.*	Geologic age		Yes	No	Appendix VI.A	
1208	VI.A.3.b.*2.*	Lithology		Yes	No	Appendix VI.A	
1209	VI.A.3.b.*3.*	Thickness		Yes	No	Appendix VI.A	
1210	VI.A.3.b.*4.*	Depth		Yes	No	Appendix VI.A	
1211	VI.A.3.b.*5.*	Geometry		Yes	No	Appendix VI.A	
1212	VI.A.3.b.*6.*	Hydraulic conductivity		Yes	No	Appendix VI.A	
1213	VI.A.3.b.*7.*	Depositional history		Yes	No	Appendix VI.A	
1214	VI.A.4.	Provide results of Subsurface Soils Investigation Report:		Yes	No	Appendix VI.A	
1215	VI.A.4.a.	Borings and boring logs:		Yes	No	Appendix VI.A	
1216	VI.A.4.a.*1.*	Completed using established exploration methods		Yes	No	Appendix VI.A	
1217	VI.A.4.a.*2.*	Investigative procedures discussed in report:		Yes	No	Appendix VI.A	
1218	VI.A.4.a.*2.a.*	Sufficient number of borings to establish stratigraphy and assess potential pathways of pollution migration		Yes	No	Appendix VI.A	
1219	VI.A.4.a.*2.b.*	Identify uppermost and underlying hydraulically interconnected aquifers		Yes	No	Appendix VI.A	
1220	VI.A.4.a.*2.c.*	Borings should penetrate through the uppermost aquifer and deep enough to identify lower aquiclude		Yes	No	Appendix VI.A	
1221	VI.A.4.a.*2.d.*	Borings must be completed to depth of at least 30 ft. below the deepest unit excavation		Yes	No	Appendix VI.A	
1222	VI.A.4.a.*2.e.*	Detailed description of stratigraphic complexities, i.e. slickensides, pinch outs, fractures, etc.		Yes	No	Appendix VI.A	
1223	VI.A.4.a.*2.f.*	Whenever possible, electric logs should run on each borehole		Yes	No	Appendix VI.A	
1224	VI.A.4.a.*2.g.*	Hollow stem auger test run where determination of initial water level is important		Yes	No	Appendix VI.A	
1225	VI.A.4.a.*2.h.*	Key on boring log giving description of soil type and its consistency and structure		Yes	No	Appendix VI.A	
1226	VI.A.4.b.	Provide minimum of two cross-sectional drawings prepared from the borings depicting the generalized soil strata at the site		Yes	No	Appendix VI.A	
1227	VI.A.4.c.	Provide a text which describes investigator's interpretations of subsurface stratigraphy based on field investigation		Yes	No	Appendix VI.A	
1228	VI.A.4.d.	Complete and submit Table VI.A.4 - Waste Management Area Subsurface Conditions in hard copy and editable electronic format. The report should address:		Yes	No	Table VI.A.4	
1229	VI.A.4.d.*1.*	Laboratory /field tests		Yes	No	Appendix VI.A	
1230	VI.A.4.d.*2.*	Test procedures		Yes	No	Appendix VI.A	
1231	VI.A.4.d.*3.*	Major strata encountered characterized by		Yes	No	Appendix VI.A	
1232	VI.A.4.d.*3.a.*	Unified soil classification		Yes	No	Appendix VI.A	
1233	VI.A.4.d.*3.b.*	Moisture content		Yes	No	Appendix VI.A	
1234	VI.A.4.d.*3.c.*	% less than #200 sieve		Yes	No	Appendix VI.A	
1235	VI.A.4.d.*3.d.*	Atterberg limits		Yes	No	Appendix VI.A	
1236	VI.A.4.d.*3.e.*	Coefficient of permeability		Yes	No	Appendix VI.A	

1237	VI.A.4.d.*4.*	Field permeability tests for sand and silt units to supplement laboratory tests		Yes	No	Appendix VI.A	
1238	VI.A.4.d.*5.*	Particle size distribution and relative density based on penetration resistance (for coarse-grained soils)		Yes	No	Appendix VI.A	
1239	VI.A.4.d.*6.*	For fine-grained soils: cohesive shear strength based on penetrometer of unconfined compression tests, dry unit weight, and degree of saturation		Yes	No	Appendix VI.A	
1240	VI.A.4.e.	For land treatment units, provide a description including the following:		Yes	No	Appendix VI.A	
1241	VI.A.4.e.1.	Name and description of soil series		Yes	No	Appendix VI.A	
1242	VI.A.4.e.2.	Physical properties of the series (i.e., depth, permeability, water capacity, soil ph, erosion factors)		Yes	No	Appendix VI.A	
1243	VI.A.4.e.3.	Engineering properties and classifications i.e., USDA Texture, Unified Soil classification , size gradation, Atterberg limits		Yes	No	Appendix VI.A	
1244	VI.A.4.e.4.	Cation exchange capacity (CEC) of soils in meq/100g		Yes	No	Appendix VI.A	
1245	VI.A.4.*f.*	Submit an aerial photograph of soil series on land treatment area; if not available, a soil series map		Yes	No	Appendix VI.A	
1246	VI.B.	Facility Ground-Water					
1247	VI.B.1.	Provide description of Regional Aquifers:		Yes	No	Appendix VI.B	
1248	VI.B.1.a.	Aquifers and associated geologic units as described in Sect. VI.A.3.b.		Yes	No	Appendix VI.B	
1249	VI.B.1.b.	Constituent materials of the aquifer(s)		Yes	No	Appendix VI.B	
1250	VI.B.1.c.	Water-bearing and transmitting properties		Yes	No	Appendix VI.B	
1251	VI.B.1.d.	Water table or artesian conditions		Yes	No	Appendix VI.B	
1252	VI.B.1.e.	If aquifers are hydraulically connected		Yes	No	Appendix VI.B	
1253	VI.B.1.f.	Regional water table contour map or potentiometric surface map		Yes	No	Appendix VI.B	
1254	VI.B.1.g.	Rate of groundwater flow, ft./yr. estimated		Yes	No	Appendix VI.B	
1255	VI.B.1.h.	Total Dissolved Solids (TDS) values		Yes	No	Appendix VI.B	
1256	VI.B.1.i.	Identification areas of recharge to the aquifers (for new land based units must include hydrogeologic report)		Yes	No	Appendix VI.B	
1257	VI.B.1.j.	Present use of groundwater		Yes	No	Appendix VI.B	
1258	VI.B.1.*k.*	Identification of aquifers for each well within 1 mile. Paragraph III.C.1.e of the Part A permit application should be updated.		Yes	No	Part A Attachment C	
1259	VI.B.2.	Provide groundwater conditions for each land based unit which requires post-closure care specified in 335. 156-167; including:		Yes	No	Appendix VI.B	
1260	VI.B.2.a.	Records of water level measurements in borings (noted on logs and X-Sections) should be taken at time of boring and after equilibration (at least 24-hrs.)		Yes	No	Appendix VI.A	
1261	VI.B.2.b.	Historic maximum and minimum static water level		Yes	No	Appendix VI.B	
1262	VI.B.2.c.	Upper and lower limits of the uppermost and hydraulically connected aquifers		Yes	No	Appendix VI.B	
1263	VI.B.2.d.	Site specific water table contour or potentiometric surface map for each aquifer encountered. Ground-water flow direction and rate should be calculated		Yes	No	Appendix VI.B	
1264	VI.B.2.e.	Discussion of the variation of hydraulic gradient across site. Calculations of maximum, minimum, and average ground-water flow velocities, and pump test data (where appropriate)		Yes	No	Appendix VI.B	
1265	VI.B.2.f.	Analysis of likely pathways for pollutant migration		Yes	No	Appendix VI.B	

1266	VI.B.3.	Provide description of the detection monitoring program:	EPA Publications 530-SW-89-026, 625/6-90/016b and SW-846; RCRA Groundwater Monitoring 1992 OSWER Directive 9950.1	Yes	No	Appendix VI.B	
1267	VI.B.3.a.	The groundwater monitoring system must have/address:		Yes	No	Appendix VI.B	
1268	VI.B.3.a.*1.*	Sufficient number of wells at justified location and depths	335.163(1)	Yes	No	Appendix VI.B	
1269	VI.B.3.a.*2.*	Background water not affected by leakage from regulated unit:	335.163(1)(A)	Yes	No	Appendix VI.B	
1270	VI.B.3.a.*2.a.*	Determination of background quality	335.163(1)(A)(i)	Yes	No	Appendix VI.B	
1271	VI.B.3.a.*2.b.*	Sampling at other wells	335.163(1)(A)(ii)	Yes	No	Appendix VI.B	
1272	VI.B.3.a.*3.*	Represent the quality of background water passing the POC	335.163(1)(B)	Yes	No	Appendix VI.B	
1273	VI.B.3.a.*4.*	Capability to resolve detection of contamination migrated from HWM unit	335.163(1)(C)	Yes	No	Appendix VI.B	
1274	VI.B.3.a.*5.*	HWM area that contains more than one regulated unit, separate groundwater not required	335.163(2)	Yes	No	Appendix VI.B	
1275	VI.B.3.a.*6.*	All wells cased to maintain integrity of borehole	335.163(3)	Yes	No	Appendix VI.B	
1276	VI.B.3.a.*7.*	Sampling and analysis procedures must include at a minimum:	335.163(4)	Yes	No	Appendix VI.B	
1277	VI.B.3.a.*7.a.*	Sample collection procedures	335.163(4)(A)	Yes	No	Appendix VI.B	
1278	VI.B.3.a.*7.b.*	Sample preservation and shipment procedures	335.163(4)(B)	Yes	No	Appendix VI.B	
1279	VI.B.3.a.*7.c.*	Analytical procedures	335.163(4)(C)	Yes	No	Appendix VI.B	
1280	VI.B.3.a.*7.d.*	Chain of custody control	335.163(4)(D)	Yes	No	Appendix VI.B	
1281	VI.B.3.a.*8.*	Appropriate and accurate sampling analytical methods	335.163(5)	Yes	No	Appendix VI.B	
1282	VI.B.3.a.*9.*	Determination of groundwater surface elevation each time groundwater is sampled	335.163(6)	Yes	No	Appendix VI.B	
1283	VI.B.3.a.*10.*	Number and kind of samples collected:	335.163(7)	Yes	No	Appendix VI.B	
1284	VI.B.3.a.*10.a.*	A sequence of at least 4 samples taken at an interval providing sample independence	335.163(7)(A)	Yes	No	Appendix VI.B	
1285	VI.B.3.a.*10.b.*	A proposed alternate sample procedure	335.163(7)(B)	Yes	No	Appendix VI.B	
1286	VI.B.3.a.*11.*	Statistical methods:	335.163(8)	Yes	No	Appendix VI.B	
1287	VI.B.3.a.*11.a.*	Parametric analysis of variance (ANOVA)	335.163(8)(A)	Yes	No	Appendix VI.B	
1288	VI.B.3.a.*11.b.*	Non-parametric ANOVA (based on ranks)	335.163(8)(B)	Yes	No	Appendix VI.B	
1289	VI.B.3.a.*11.c.*	Tolerance or prediction interval procedure	335.163(8)(C)	Yes	No	Appendix VI.B	
1290	VI.B.3.a.*11.d.*	Control chart approach	335.163(8)(D)	Yes	No	Appendix VI.B	
1291	VI.B.3.a.*12.e.*	Alternative approach approved by ED	335.163(8)(E)	Yes	No	Appendix VI.B	
1292	VI.B.3.a.*13.*	Any statistical method chosen under 335.163(8), must meet the performance standard as appropriate:	335.163(9)	Yes	No	Appendix VI.B	

1293	VI.B.3.a.*13.a.*	Be appropriate to the distribution of chemical parameters and hazardous constituents	335.163(9)(A)	Yes	No	Appendix VI.B	
1294	VI.B.3.a.*13.b.*	Test under Type 1 error level no less than 0.01 for each testing period	335.163(9)(B)	Yes	No	Appendix VI.B	
1295	VI.B.3.a.*13.c.*	Indicate whether a Control chart approach is to be used	335.163(9)(C)	Yes	No	Appendix VI.B	
1296	VI.B.3.a.*13.d.*	If tolerance interval or prediction interval is used: the report must include levels of confidence, tolerance intervals, and % population	335.163(9)(D)	Yes	No	Appendix VI.B	
1297	VI.B.3.a.*13.e.*	Expected or predicted Practical Quantitation Limit (PQL)	335.163(9)(E)	Yes	No	Appendix VI.B	
1298	VI.B.3.a.*13.f.*	Procedures to control or correct seasonal and spatial variability	335.163(9)(F)	Yes	No	Appendix VI.B	
1299	VI.B.3.a.*14.*	Groundwater monitoring data must be maintained at the facility operating record	335.163(10)	Yes	No	Appendix VI.B	
1300	VI.B.3.a.*15.*	Detection monitoring program must establish:	335.164	Yes	No	Appendix VI.B	
1301	VI.B.3.a.*15.a.*	Indicator parameters, waste constituents, reaction products to be monitored	335.164(1)	Yes	No	Appendix VI.B	
1302	VI.B.3.a.*15.b.*	Types, quantities, and concentrations of constituents	335.164(1)(A)	Yes	No	Appendix VI.B	
1303	VI.B.3.a.*15.c.*	Mobility, stability, and persistence of waste constituents or reaction products in the unsaturated zone	335.164(1)(B)	Yes	No	Appendix VI.B	
1304	VI.B.3.a.*15.d.*	Detection of indicator parameters	335.164(1)(C)	Yes	No	Appendix VI.B	
1305	VI.B.3.a.*15.e.*	Concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the background	335.164(1)(D)	Yes	Yes	Appendix VI.B	Proposed updates to concentration limits per 2024 Memorandum
1306	VI.B.3.a.*16.*	Groundwater monitoring system is at the compliance point specified under 335.161	335.164(2)	Yes	No	Appendix VI.B	
1307	VI.B.3.a.*17.*	Chemical parameter and hazardous constituents per 335.163(7)	335.164(3)	Yes	Yes	Appendix VI.B	Propose removal of pentachlorophenol per 2024 Memorandum
1308	VI.B.3.a.*18.*	Background groundwater concentration values for proposed parameters	335.164(3)(A-C)	Yes	No	Appendix VI.B	
1309	VI.B.3.a.*19.*	Frequencies for collecting samples and conducting statistical tests	335.164(4)	Yes	Yes	Appendix VI.B	Propose updating quarterly to annual groundwater monitoring per 2024 Memorandum
1310	VI.B.3.a.*20.*	Statistically significant increase in any constituent or parameter capable of being identified at any compliance point monitoring well	335.164(6-7)	Yes	No	Appendix VI.B	
1311	VI.B.3.b.	Submit a justification for the selection of proposed suite of waste specific parameters specified in Table VI.B.3.c		Yes	No	Table VI.B.3.c	
1312	VI.B.3.c.	Submit a proposed sampling and analysis plan, including:		Yes	No	Appendix VI.C	
1313	VI.B.3.c.*1.*	Sampling and analytical methods		Yes	No	Appendix VI.C	
1314	VI.B.3.c.*2.*	Statistical comparison procedures		Yes	No	Appendix VI.C	
1315	VI.B.3.c.*3.*	Alternate methods demonstrated as appropriate for groundwater analysis	335.163(5)	Yes	No	Appendix VI.C	
1316	VI.B.3.d.	Submit a specific statistical method and process for comparing constituent concentrations to background, including:	335.163	Yes	No	Appendix VI.C	
1317	VI.B.3.d.*1.*	Sampling procedures must provide representative samples of the regulated activity in time and manner of sampling		Yes	No	Appendix VI.C	
1318	VI.B.3.d.*2.*	All data submitted in a manner consistent with *TCEQ Quality Control and Assurance Project Plan for Monitoring and Measurements Activities Relating to RCRA and UIC (TCEQ QAPP)*		Yes	No	Appendix VI.C	
1319	VI.B.3.e.	Complete and submit Table VI.B.3.b - Unit Groundwater Detection Monitoring System in hard copy and editable electronic format		Yes	No	Table VI.B.3.b	
1320	VI.B.3.f.	Complete and submit Table VI.B.3.c - Groundwater Detection Monitoring Parameters in hard copy and editable electronic format; specifying:		Yes	Yes	Table VI.B.3.c	Updating concentration limits, sampling frequency, and analyte sampling list per 2024 Memorandum
1321	VI.B.3.f.1.	The suite of waste specific parameters		Yes	No	Appendix VI.C	

1322	VI.B.3.f.2.	The sampling frequencies and calendar intervals		Yes	Yes	Appendix VI.C	Propose updating quarterly to annual groundwater monitoring per 2024 Memorandum
1323	VI.B.3.f.3.	The analytical method and laboratory predicted detection limit and predicted Practical Quantitation Limit of the analyses		Yes	No	Appendix VI.C	
1324	VI.B.3.f.4.	The concentration limit which will be the basis for determining whether a release has occurred from the waste management unit/area		Yes	Yes	Appendix VI.C	Propose concentration limit update per 2024 Memorandum
1325	VI.B.3.g.	Submit drawings depicting the monitoring well design, current and proposed		Yes	No	Appendix VI.C	
1326	VI.B.3.h.	Submit at least one map of the entire facility on one or more 8 1/2” X 11” sheets with a scale to show:		Yes	No	Appendix VI.C	
1327	VI.B.3.h.1.	Monitoring well location design, current and proposed		Yes	No	Appendix VI.C	
1328	VI.B.3.h.2.	Soil-pore liquid and core sampling points, current and proposed		Yes	No	Appendix VI.C	
1329	VI.B.3.h.3.	Waste management unit(s) area		Yes	No	Appendix VI.C	
1330	VI.B.3.h.4.	Property boundary		Yes	No	Appendix VI.C	
1331	VI.B.3.h.5.	Point of compliance		Yes	No	Appendix VI.C	
1332	VI.B.3.h.6.	Direction of groundwater		Yes	No	Appendix VI.C	
1333	VI.B.3.h.7.	Extent of any known plume of contamination		Yes	No	Appendix VI.C	
1334	VI.B.3.i.	Complete and submit the statement indicating:		Yes	No	Appendix VI.C	
1335	VI.B.3.i.*1.*	Typical depth to groundwater in the uppermost aquifer		Yes	No	Appendix VI.C	
1336	VI.B.3.i.*2.*	The name of the geological formation the uppermost aquifer is located in		Yes	No	Appendix VI.C	
1337	VI.B.3.i.*3.*	The lithological description of the formation		Yes	No	Appendix VI.C	
1338	VI.B.3.i.*4.*	The formation thickness		Yes	No	Appendix VI.C	
1339	VI.B.3.i.*5.*	The general direction of groundwater flow		Yes	No	Appendix VI.C	
1340	VI.C.	Exemption from Groundwater Monitoring		N/A	N/A	N/A	Not applicable
1341	VI.C.~.*a.*	If applicable, demonstrate potential for migration of liquid from waste management unit to the upper most aquifer during active life of unit	335.156(b)(4)	N/A	N/A	N/A	Not applicable
1342	VI.C.~.*b.*	Provide demonstration certified by qualified geologist or geotechnical engineer	335.156(b)(4)	N/A	N/A	N/A	Not applicable
1343	VI.C.~.*c.*	Address the following:		N/A	N/A	N/A	Not applicable
1344	VI.C.1.	Thickness of soil between the base of the unit and saturated zone		N/A	N/A	N/A	Not applicable
1345	VI.C.2.	Thickness of saturated zone		N/A	N/A	N/A	Not applicable
1346	VI.C.3.	Head pressure of the liquids		N/A	N/A	N/A	Not applicable
1347	VI.C.4.	Properties of the saturated and unsaturated zone (including permeability, effective porosity, and homogeneity)		N/A	N/A	N/A	Not applicable
1348	VI.C.5.	Total life of facility		N/A	N/A	N/A	Not applicable
1359	VII.	Closure and Post-Closure Plans				Appendix VII	
1360	VII.~.	Submit a closure plan and/or post-closure plan, as applicable, including the following information:	270.14(b)(13); 264 Subpart G.; Chapter 350	Yes	Yes	Appendix VII	Updating benchmark surveying requirement and contact information
1361	VII.~.*1.*	Certification of deed recordation of waste disposal activities shall be provided for closure of facilities with wastes in place	335.5	Yes	No	Part A Attachment B	
1362	VII.~.*2.*	Survey plat and notices for land disposal unit closed before application	264.116; 264.119	Yes	No	Part A Attachment B	
1455	VII.C.	Post-Closure				Appendix VII.C	
1456	VII.C.~.	Post-closure must continue for at least 30 years	264.117(a)(1)			Appendix VII.C	

1457	VII.C.1.	Provide the post-closure care plan for land treatment unit, landfill, surface impoundment, waste pile, miscellaneous unit, or tank system closed with wastes or waste constituents left in place or closed under contingent closure plan must identify the activities which will be performed and their frequencies; including the following:	264.118(b)	Yes	Yes	Appendix VII.C	Updating benchmark surveying requirement and contact information
1458	VII.C.1.*a.*	Monitoring activities and frequency at which they will be performed during post-closure	264.118(b)(1); 335.172(c); 264.280(c); 335.174(b); 264.310(b); 335.169(b); 264.228(b); 264.258(b); 264.603	Yes	Yes	Appendix VII.C	Updating from quarterly to annual sampling
1459	VII.C.1.*b.*	Description of the planned maintenance activities and frequencies of performing to ensure:	264.118(b)(2)	Yes	No	Appendix VII.C	
1460	VII.C.1.*b.1.*	Integrity of the cap and final cover or containment system	264.118(b)(2)(i)	Yes	No	Appendix VII.C	
1461	VII.C.1.*b.2.*	Function of monitoring equipment	264.118(b)(2)(ii)	Yes	No	Appendix VII.C	
1462	VII.C.1.*c.*	Maintain final cover	335.174(b)(1); 264.310(b)(1)	Yes	No	Appendix VII.C	
1463	VII.C.1.*d.*	Continue to operate leachate collection system	335.174(b)(2); 264.310(b)(2)	Yes	No	Appendix VII.C	
1464	VII.C.1.*e.*	Maintain and monitor the leak detection system	335.174(b)(3); 264.310(b)(3)	Yes	No	Appendix VII.C	
1465	VII.C.1.*f.*	Maintain and monitor groundwater/soil monitoring system	335.174(b)(4)	Yes	No	Appendix VII.C	
1466	VII.C.1.*g.*	Prevent run-on and run-off from eroding or damaging the cover	335.174(b)(5)	Yes	No	Appendix VII.C	
1467	VII.C.1.*h.*	Protect and maintain surveyed benchmarks (as applicable) used in complying 264.309	335.174(b)(6); 264.310(b)(6)	Yes	Yes	Appendix VII.C	Updating from annual to every five years
1478	VII.C.1.*j.1.*	Must comply with 264.601 during the post-closure care period. The post-closure plan under 264.118 must specify the procedures to satisfy this requirement. (For wastes closed in place, the plan must identify 350.33 Remedy Standard B.)	264.603	Yes	No	Appendix VII.C	
1479	VII.C.2.	Provide name, address, and phone number of the person or office to contact during post-closure period	264.118(b)(3)	Yes	Yes	Appendix VII.C	Updating contact information to Jason Pierce
1480	VII.C.3.	Submit a discussion of the future use of land associated with each unit		Yes	No	Appendix VII.C	
1481	VII.C.4.	For landfills, surface impoundments, waste piles and land treatment areas closed under interim status, submit the required documentation of the notices under 264.119	270.14(b)(14)	Yes	No	Appendix VII.C	
1482	VII.C.5.	If equivalency determination has not been made for landfills, surface impoundments, waste piles and land treatment areas, submit a copy of the demonstration documentation. Complete Table VII.C.5. - Land-Based Units Closed Under Interim Status for all land based units closed under interim status	270.1(c)(5-6)	Yes	No	Appendix VII.C	
1543	IX.	Releases from Solid Waste Management Units and Corrective Action				Section IX and Appendices	
1544	IX.~.	Provide status of Corrective Action		N/A	N/A	N/A	Not applicable
1545	IX.A.	Complete applicable sections of Preliminary Review Facility Checklist	335.166-167	Yes	No	Appendix IX	
1546	IX.B.	Provide Appendices to Preliminary Review:		Yes	No	Appendix IX	
1547	IX.B.*1.*	Appendix I , Facility and SWMU location maps:		Yes	No	Appendix IX	
1548	IX.B.*1.a.*	Regional location map		Yes	No	Appendix IX	
1549	IX.B.*1.b.*	Site location map		Yes	No	Appendix IX	
1550	IX.B.*2.*	Appendix II, Wastes Managed:		Yes	No	Appendix IX	
1551	IX.B.*2.a.*	List of wastes managed		Yes	No	Appendix IX	
1552	IX.B.*2.b.*	40 CFR 261, Appendix VIII hazardous constituents		Yes	No	Appendix IX	
1553	IX.B.*2.c.*	40 CFR 261, Appendix IX hazardous constituents		Yes	No	Appendix IX	
1554	IX.B.*3.*	Appendix III, Evidence of Release:		Yes	No	Appendix IX	
1555	IX.B.*3.a.*	Documentation of release		Yes	No	Appendix IX	

1556	IX.B.*3.b.*	Map of release locations, SWMU identification and paths traveled		Yes	No	Appendix IX	
1557	IX.B.*4.*	Appendix IV, Pollutant Dispersal Pathways:		Yes	No	Appendix IX	
1558	IX.B.*4.a.*	Facility, local and regional map identifying eventual pathways of release from unit		Yes	No	Appendix IX	
1559	IX.B.*4.b.*	Facility cross-section, vertical pathways and lateral movements in groundwater		Yes	No	Appendix IX	
1560	IX.*C.*	Preliminary review submittal format. Ensure Preliminary review is bound with a cover page and contains a Table of Contents, etc.		Yes	No	Appendix IX	
1591	XI.~.	If a compliance plan is required, follow the application instructions contained in Section XI-Compliance Plan of the Part B Application Form to complete and submit with the rest of the application. If possible, use a separate binder for Section XI materials. Your Section XI submittal will be forwarded to the Corrective Action Program, Remediation Division for review upon receipt.				N/A	
1592	XII.	Hazardous Waste Permit Application Fee				Appendix XII	
1593	XII.~.	Complete and submit Table XII.A. - Hazardous Waste Units (for application fee calculations) and Table XII.B. - Hazardous Waste Application Fee Worksheet in hard copy and editable electronic format		Yes	Yes	Tables X II.A and XII.B	Provided for 2024 update/renewal
1594	XII.A.	Minimum permit application fee for new permit or renewal is $2,000. Calculate the maximum according to the following:	305.53(a)(1)	Yes	Yes	Table XII.B	
1595	XII.A.1.	Process analysis fee: $1,000	305.53(a)(2)(B)	Yes	Yes	Table XII.B	
1596	XII.A.2.	Management/Facility Analysis: $500	305.53(a)(2)(D)	Yes	Yes	Table XII.B	
1597	XII.A.3.	Facility Unit Analysis: $500 per unit:	305.53(a)(2)(C)	Yes	Yes	Table XII.B	
1598	XII.A.3.a.	Each non-identical cell of landfill: $500	305.53(a)(3)	Yes	Yes	Table XII.B	
1599	XII.A.3.b.	Each non-identical CSA or tank: $500	305.53(a)(3)	N/A	N/A	N/A	Not applicable
1600	XII.A.3.c.	Identical is defined as: made of same material & design; capacity within + 10%; stores the same waste; and have same storage management characteristics	305.53(a)(3)	Yes	Yes	Table XII.B	
1601	XII.A.4.	Site evaluation fee of $100 per acre (maximum of 300 acres)	305.53(a)(2)(A)	Yes	Yes	Table XII.B	
1602	XII.A.5.*a.*	Initial application fee for notice: $50	305.53(b)	Yes	Yes	Table XII.B	
1603	XII.A.5.*b.*	Renewal notice fee: $15	305.53(b)	Yes	Yes	Table XII.B	
1604	XII.B.	Calculate the application fee for major amendment, Class 2 or Class 3 permit modification for operation, closure, or post-closure, according to the following:		Yes	Yes	Table XII.B	
1605	XII.B.1.	Management fee: $500		Yes	Yes	Table XII.B	
1606	XII.B.2.	Notice fee: $50		Yes	Yes	Table XII.B	
1607	XII.B.3.	Unit added or unit area expanded: $100 per acre up to 300 acres		N/A	N/A	N/A	Not applicable
1608	XII.B.4.	$1000 process analysis fee if one or more of the following are added or revised:		Yes	Yes	Table XII.B	
1609	XII.B.4.a.	Waste analysis plan		Yes	Yes	Table XII.B	
1610	XII.B.4.b.	Site-specific or regional geology report		Yes	Yes	Table XII.B	
1611	XII.B.4.c.	Site-specific or regional hydrogeologic report		Yes	Yes	Table XII.B	
1612	XII.B.4.d.	Groundwater/unsaturated zone monitoring report		Yes	Yes	Table XII.B	
1613	XII.B.4.e.	Closure/Post-Closure Plan		Yes	Yes	Table XII.B	
1614	XII.B.4.f.	RFI or corrective action reports		Yes	Yes	Table XII.B	
1615	XII.B.5.	$500 unit analysis fee if any of the following are requested:		N/A	N/A	Table XII.B	Not applicable
1616	XII.B.5.a.	Unit is added		N/A	N/A	Table XII.B	Not applicable
1617	XII.B.5.b.	Design change to an existing unit		N/A	N/A	Table XII.B	Not applicable
1618	XII.B.5.c.	Unit status change from closure to post-closure care		N/A	N/A	Table XII.B	Not applicable
1619	XII.C.	For a minor amendment, Class 1 or Class 1-1 permit modification, provide: $100 plus a $50 notice fee		N/A	N/A	Table XII.B	Not applicable
1620	XIII.	Confidential Materials				Table XII.B	Not applicable
1621	XIII.*A.*	If any confidential information given in Sections I through X of the application, place information in a separate collective document labeled "CONFIDENTIAL"		N/A	N/A	Table XII.B	Not applicable
Items below are not applicable to your application.							

32	I.E.6.	For a new commercial HW management facility or an areal expansion of an existing commercial HW management facility, indicate whether the facility is within 1/2 mi. of an established residence, church, school, day care, etc.; If yes, TCEQ will not issue a permit for this facility	335.205(a)(2-5)				Please provide an answer in the Submitted column!
56	II.B.	Additional requirements for land treatment facilities.	335.204(b)				
57	II.B.1.	Indicate whether the land treatment facility located or proposed to be located is within 1000 ft. of an established residence, church, school, daycare center, etc.; If yes, TCEQ will not issue a permit for a new HW land treatment unit or areal expansion for an existing land treatment unit per 335.204(b)(6) and 335. 205(a)	335.204(b)(6)				Please provide an answer in the Submitted column!
58	II.B.2.a.	Indicate whether the land treatment facility located or proposed to be located is within 1000 ft. of an area subject to coastal shoreline erosion which is protected by a barrier island or peninsula; If yes, Section V.F must include information to address the adverse effects	335.204(b)(9)				Please provide an answer in the Submitted column!
59	II.B.2.b.	Indicate whether the land treatment facility located or proposed to be located is within 5000 ft. of an area subject to coastal shoreline erosion which is unprotected by a barrier island or peninsula; If yes, Section V.F must include information to address the adverse effects	335.204(b)(9)				Please provide an answer in the Submitted column!
60	II.B.3.	Indicate whether the land treatment facility located or proposed to be located is on a barrier island or peninsula; If yes, permit will not be issued for a new HW land treatment unit or an areal expansion of an existing land treatment unit per 335.204(b)(11) and 335. 205(a)(1)	335.204(b)(11)				Please provide an answer in the Submitted column!
61	II.C.	Additional requirements for Waste Piles	335.204(c)				
62	II.C.1.a.	Indicate whether the waste pile is located or proposed to be located within 1000 ft. of an area subject to active coastal shoreline erosion which is protected by a barrier island or peninsula; If yes, Section V.E must include information to address the adverse effects	335.204(c)(8)				Please provide an answer in the Submitted column!
63	II.C.1.b.	Indicate whether the waste pile is located or proposed to be located within 5000 ft. of an area subject to active coastal shoreline erosion which is unprotected by a barrier island or peninsula; If yes, Section V.E must include information to address the adverse effects	335.204(c)(8)				Please provide an answer in the Submitted column!
64	II.C.2.	Indicate whether the waste pile is located or proposed to be located on a barrier island or peninsula; If yes, permit will not be issued for a new HW pile or an areal expansion of an existing waste pile	335.204(c)(10)				Please provide an answer in the Submitted column!
65	II.D.	Additional requirements for storage surface impoundments:	335.204(d)				
66	II.D.1.a.	Indicate whether the storage surface impoundment is located or proposed to be located within 1000 ft. of an area subject to active coastal shoreline erosion which is protected by a barrier island or peninsula; If yes, Section V.D must include information to address the adverse effects	335.204(d)(8)				Please provide an answer in the Submitted column!
67	II.D.1.b.	Indicate whether the storage surface impoundment is located or proposed to be located within 5000 ft. of an area subject to active shoreline erosion unprotected by a barrier island or peninsula; If yes, Section V.D must include information to address the adverse effects	335.204(d)(8)				Please provide an answer in the Submitted column!
68	II.D.2.	Indicate whether the storage surface impoundment is located or proposed to be located on a barrier island or peninsula; If yes, permit will not be issued for a new HW storage surface impoundment or an areal expansion of an existing surface impoundment	335.204(d)(10)				Please provide an answer in the Submitted column!
90	II.G.3.	For a new commercial HW management facility provide:	305.50(a)(12)(A)				
91	II.G.3.a.	Average number, gross weight, type and size of vehicles used to transport HW	305.50(a)(12)(A)(i)				Please provide an answer in the Submitted column!
92	II.G.3.b.	Major highways nearest the facility irrespective of distance	305.50(a)(12)(A)(ii)				Please provide an answer in the Submitted column!
93	II.G.3.c.	Public roadways within 2.5 mile radius from facility	305.50(a)(12)(A)(iii)				Please provide an answer in the Submitted column!
103	III.B.	Personnel Training Plan:	264.16				
104	III.B.*1.*	Provide an outline of training program:	264.16(a)(1-3)				Please provide an answer in the Submitted column!
105	III.B.*1.a.*	Facility personnel must complete the program required training 6 months after the date of employment	264.16(b)				Please provide an answer in the Submitted column!
106	III.B.*1.b.*	Annual review	264.16(c)				Please provide an answer in the Submitted column!
107	III.B.*1.c.*	Job title/job description	264.16(d)(1-4)				Please provide an answer in the Submitted column!

108	III.B.1.d.	Training records	264.16(e)				Please provide an answer in the Submitted column!
124	III.D.1.g.	CONTAINER STORAGE AREA INSPECTION: (weekly)					Please provide an answer in the Submitted column!
125	III.D.1.g.1.	Leaks, spills, and deteriorations caused by corrosion or other factors (weekly)	264.174				Please provide an answer in the Submitted column!
126	III.D.1.g.2.	Containment system for Container Storage Areas:					Please provide an answer in the Submitted column!
127	III.D.1.g.2.a.	Free of cracks, gaps, leaks spills, precipitation					Please provide an answer in the Submitted column!
128	III.D.1.g.2.b.	Area must be sloped					Please provide an answer in the Submitted column!
129	III.D.1.g.2.c.	Containment contain 10% vol. of containers or the vol. of the largest containers					Please provide an answer in the Submitted column!
130	III.D.1.g.2.d.	Containment run-on system					Please provide an answer in the Submitted column!
131	III.D.1.g.2.e.	Spills, leaks, accumulated precipitation					Please provide an answer in the Submitted column!
132	III.D.1.g.3.	Containers do not contain free liquids					Please provide an answer in the Submitted column!
133	III.D.1.g.4.	Loading and unloading areas for Container Storage Areas					Please provide an answer in the Submitted column!
134	III.D.1.h.	TANK SYSTEM INSPECTION:					Please provide an answer in the Submitted column!
135	III.D.1.h.1.	Tank overfilling control	264.195				Please provide an answer in the Submitted column!
136	III.D.1.h.2.	Above ground portions (daily)	264.195(c)(1)				Please provide an answer in the Submitted column!
137	III.D.1.h.3.	Tank monitoring data and leak detection equipment (daily)	264.195(b)				Please provide an answer in the Submitted column!
138	III.D.1.h.4.	Tank construction materials including secondary containment and surrounding area (daily)	264.195(c)(2)				Please provide an answer in the Submitted column!
139	III.D.1.h.5.	Ancillary Equipment without secondary containment must be inspected each operating day	264.195(f)				Please provide an answer in the Submitted column!
140	III.D.1.h.6.	Cathodic protection system:	264.195(g)				Please provide an answer in the Submitted column!
141	III.D.1.h.6.a.	Six months after installation and annually thereafter	264.195(g)(1)				Please provide an answer in the Submitted column!
142	III.D.1.h.6.b.	Source of impressed current (bi-monthly)	264.195(g)(2)				Please provide an answer in the Submitted column!
143	III.D.1.h.7.	Facilities requesting a variance from secondary containment must:	264.193(h)				Please provide an answer in the Submitted column!
144	III.D.1.h.7.a.	Perform a leak test for non-enterable underground tanks (annually)	264.193(i)(1)				Please provide an answer in the Submitted column!
145	III.D.1.h.7.b.	Perform a leak test for other than non-enterable underground tanks	264.193(i)(2)				Please provide an answer in the Submitted column!
146	III.D.1.h.7.c.	Ancillary equipment/leak test integrity assessment (annually)	264.193(i)(3)				Please provide an answer in the Submitted column!
147	III.D.1.h.7.d.	Maintain assessment records	264.193(i)(4)				Please provide an answer in the Submitted column!
148	III.D.1.h.7.e.	Response to leaks following 264.196	264.193(i)(5)				Please provide an answer in the Submitted column!
149	III.D.1.i.	SURFACE IMPOUNDMENT INSPECTIONS: (weekly and after storms):	264.226(b)				Please provide an answer in the Submitted column!
150	III.D.1.i.1.	Deterioration, malfunction, or improper overtopping control system	264.226(b)(1)				Please provide an answer in the Submitted column!
151	III.D.1.i.2.	Sudden drops in the level of impoundment contents	264.226(b)(2)				Please provide an answer in the Submitted column!
152	III.D.1.i.3.	Deterioration of containment devices	264.226(b)(3)				Please provide an answer in the Submitted column!
153	III.D.1.i.4.	Leak detection system inspected at least once each week during active life and closure period	264.226(d)(1)				Please provide an answer in the Submitted column!
154	III.D.1.j.	WASTE PILE INSPECTION: (weekly and after storms):	264.254(b)				Please provide an answer in the Submitted column!
155	III.D.1.j.1.	Run-on and run-off control system inspected for deterioration, malfunction, or improper operation of	264.254(b)(1)				Please provide an answer in the Submitted column!
156	III.D.1.j.2.	Wind dispersal system	264.254(b)(2)				Please provide an answer in the Submitted column!
157	III.D.1.j.3.	Leachate collection and removal systems	264.254(b)(3)				Please provide an answer in the Submitted column!
158	III.D.1.j.4 .	Leak detection system	264.254(c)				Please provide an answer in the Submitted column!
159	III.D.1.k.	LAND TREATMENT UNIT INSPECTION: (weekly and after storms)	264.273(g)				Please provide an answer in the Submitted column!
160	III.D.1.k.1.	Deterioration, malfunctions, or improper operation of run-on and run-off control systems	264.273(g)(1)				Please provide an answer in the Submitted column!
161	III.D.1.k.2.	Wind dispersal control system	264.273(g)(2)				Please provide an answer in the Submitted column!
167	III.D.1.m.	INCINERATOR INSPECTION:	264.347				Please provide an answer in the Submitted column!
168	III.D.1.m.1.	Incinerator and associated equipment visual inspection (daily)	264.347(b)				Please provide an answer in the Submitted column!
169	III.D.1.m.2.	Incinerator waste feed cut-off system and associated alarms tested (weekly)	264.347(c)				Please provide an answer in the Submitted column!
170	III.D.1.n.	BOILER AND INDUSTRIAL FURNACES INSPECTION:	266.102(e)(8)				Please provide an answer in the Submitted column!
171	III.D.1.n.1.	BIF and associated equipment- visual inspection (daily)	266.102(e)(8)(iii)				Please provide an answer in the Submitted column!
172	III.D.1.n.2.	Feed cut-off system and associated alarms (weekly)	266.102(e)(8)(iv)				Please provide an answer in the Submitted column!
173	III.D.1.o.	DRIP PAD INSPECTION: (weekly and after storms):	264.574(b)				Please provide an answer in the Submitted column!
174	III.D.1.o.1.	Deterioration, malfunctions, or improper operation of run-on and run-off control systems	264.574(b)(1)				Please provide an answer in the Submitted column!
175	III.D.1.o.2.	Presence of leakage in the leak detection system	264.574(b)(2)				Please provide an answer in the Submitted column!
176	III.D.1.o.3.	Deterioration or cracking of the drip pad surface	264.574(b)(3)				Please provide an answer in the Submitted column!

177	III.D.*1.p.*	MISCELLANEOUS UNIT INSPECTION	264.602				Please provide an answer in the Submitted column!
178	III.D.*1.q.*	CONTAINMENT BUILDING INSPECTION	264.1101				Please provide an answer in the Submitted column!
179	III.E.	Contingency Plan (Does not apply to post-closure application)	335.152(a)(1)(C and D); 264 subparts C and D				
180	III.E.~.*a.*	Provide amendments to SPCC Plan as applicable	264.52(b)				Please provide an answer in the Submitted column!
181	III.E.~.*b.*	Provide general information including a facility drawing showing location of all emergency equipment, emergency coordinators, and statements that the emergency coordinator is authorized to commit the resources of the facility	264.52; 264.55				Please provide an answer in the Submitted column!
182	III.E.~.*c.*	Provide location of waste and demonstrate that facilities will be eligible to receive HW	270.14(b)(11)(iv)(C)(2)				Please provide an answer in the Submitted column!
183	III.E.~.*d.*	Provide the potential for accidental discharges of waste during movement	270.14(b)(11)(iv)(C)(4)				Please provide an answer in the Submitted column!
184	III.E.~.*e.*	Provide a copy of Contingency Plan to appropriate local authorities	264.53				Please provide an answer in the Submitted column!
185	III.E.~.*f.*	Amend the contingency plan as appropriate	264.54				Please provide an answer in the Submitted column!
186	III.E.~.*g.*	Describe emergency procedures, notification & post-incident written report	335.153; 264.56				Please provide an answer in the Submitted column!
187	III.E.1.	Complete and submit Table III.E.1. - Arrangements With Local Authorities in hard copy and editable electronic format:	264.37; 264.52(c)				Please provide an answer in the Submitted column!
188	III.E.1.*a.*	Provide arrangements to familiarize local authorities with:	264.37(a)(1)				Please provide an answer in the Submitted column!
189	III.E.1.*a.1.*	Facility layout	264.37(a)(1)				Please provide an answer in the Submitted column!
190	III.E.1.*a.2.*	Properties of HW handled	264.37(a)(1)				Please provide an answer in the Submitted column!
191	III.E.1.*a.3.*	Possible injuries form fires, explosions, or releases of HW at the facility	264.37(a)(4)				Please provide an answer in the Submitted column!
192	III.E.1.*a.4.*	Facility personnel work areas	264.37(a)(1)				Please provide an answer in the Submitted column!
193	III.E.1.*a.5.*	Facility entrances	264.37(a)(1)				Please provide an answer in the Submitted column!
194	III.E.1.*a.6.*	Evacuation routes	264.37(a)(1)				Please provide an answer in the Submitted column!
195	III.E.2.	Complete and submit Table III.E.2 - Emergency Coordinators (list of addresses and telephone numbers) in hard copy and editable electronic format; Must include alternate emergency coordinator(s)	264.52(d)				Please provide an answer in the Submitted column!
196	III.E.3.	Complete and submit Table II.E.3 - Emergency Equipment in hard copy and editable electronic format including:	264.32; 264.52(e)				Please provide an answer in the Submitted column!
197	III.E.3.*a.*	Fire-extinguishing system	264.32(c); 264.52(e)				Please provide an answer in the Submitted column!
198	III.E.3.*b.*	Spill-control equipment	264.32(c); 264.52(e)				Please provide an answer in the Submitted column!
199	III.E.3.*c.*	Communications and alarm systems (internal and external)	264.32(a) and (b); 264.52(e)				Please provide an answer in the Submitted column!
200	III.E.3.*d.*	Decontamination equipment	264.32(c); 264.52(e)				Please provide an answer in the Submitted column!
201	III.E.3.*e.*	Water at adequate volume & pressure, foam producing equipment, sprinklers, or water spray systems	264.32(d); 264.52(e)				Please provide an answer in the Submitted column!
202	III.E.3.*f.*	Testing and Maintenance of equipment (May include as Part of Inspection Schedule)	264.33; 264.15(b)(1)				Please provide an answer in the Submitted column!
203	III.E.3.*g.*	Access to communications or alarm system	264.34				Please provide an answer in the Submitted column!
204	III.E.3.*h.*	Evacuation plan and signal	254.52(f)				Please provide an answer in the Submitted column!
205	III.F.	Emergency Response Plan (For new or renewal of commercial HW management facility only)	305.50(a)(12)(C-D)				
206	III.F.1.	Provide practice drills:					Please provide an answer in the Submitted column!
207	III.F.1.*a.*	Timing of practice evacuation drills	305.50(a)(12)(C)(i)(I)				Please provide an answer in the Submitted column!
208	III.F.1.*b.*	Efficiency and safety of evacuation	335.183(d)(11)				Please provide an answer in the Submitted column!
209	III.F.2.	Provide contracts if applicable:					Please provide an answer in the Submitted column!
210	III.F.2.*a.*	Contracts with any private corporation, municipality, or county	305.50(a)(12)(C)(i)(I)				Please provide an answer in the Submitted column!
211	III.F.3.	Provide weather data:					Please provide an answer in the Submitted column!
212	III.F.3.*a.*	Historical weather data	305.50(a)(12)(C)(i)(III)				Please provide an answer in the Submitted column!
213	III.F.3.*b.*	Seasonally prevailing winds and weather	335.183(d)(3)				Please provide an answer in the Submitted column!
214	III.F.4.	Define worst-case emergencies for proposed facility	305.50(a)(12)(C)(i)(IV)				Please provide an answer in the Submitted column!
215	III.F.5.	Provide training program for emergency response personnel, including requirements described in regulations	305.50(a)(12)(C)(i)(V); 264.16 29; CFR 1910.120(e); EPA Fed Reg. 311; TX Haz. Comm. Act SARA 302, 304, 311, 312, and 313				Please provide an answer in the Submitted column!

216	III.F.6.	Describe and identify first responders:					Please provide an answer in the Submitted column!
217	III.F.6.*a.*	Identification of first responders	305.50(a)(12)(C)(i)(VI)				Please provide an answer in the Submitted column!
218	III.F.6.*b.*	Length of time for first response	335.183(d)(6)				Please provide an answer in the Submitted column!
219	III.F.6.*c.*	Equipment and trained personnel available on first response basis	335.183(d)(8)				Please provide an answer in the Submitted column!
220	III.F.7.	Identify local or regional emergency medical services:	305.50(a)(12)(C)(i)(VII)				Please provide an answer in the Submitted column!
221	III.F.7.*a.*	Availability of local emergency response resources	335.183(d)(4)				Please provide an answer in the Submitted column!
222	III.F.8.	Provide pre-disaster plan	305.50(a)(12)(C)(i)(VIII)				Please provide an answer in the Submitted column!
223	III.F.9.	Describe mechanism for notifying first respondent and all applicable government agencies (i.e. TCEQ, TPWD, TCEQ Office of Air Quality, GLO, TDH, & TRRC)	305.50(a)(12)(C)(i)(IX)				Please provide an answer in the Submitted column!
224	III.F.10.	Provide evidence of Local Emergency Planning Committee and compliance with SARA Title III	305.50(a)(12)(C)(i)(X)				Please provide an answer in the Submitted column!
225	III.F.11.	Provide details of medical response:					Please provide an answer in the Submitted column!
226	III.F.11.*a.*	Medical response capabilities	305.50(a)(12)(C)(i)(XI)				Please provide an answer in the Submitted column!
227	III.F.11.*b.*	Ability to deal with various types of injuries	335.183(d)(9)				Please provide an answer in the Submitted column!
228	III.F.11.*c.*	Other factors that will be reviewed and considered for permitting decisions on approvals of new commercial HW management facilities:	335.183(d)				
229	III.F.11.*c.1.*	Geology of the area	335.183(d)(1)				Please provide an answer in the Submitted column!
230	III.F.11.*c.2.*	Drainage patterns	335.183(d)(2)				Please provide an answer in the Submitted column!
231	III.F.11.*c.3.*	Proximity of human exposure and/or sensitive environmental receptors	335.183(d)(5)				Please provide an answer in the Submitted column!
232	III.F.11.*c.4.*	Trained response teams on-site	335.183(d)(7)				Please provide an answer in the Submitted column!
233	III.F.11.*c.5.*	Ability to respond to environmental contamination	335.183(d)(10)				Please provide an answer in the Submitted column!
234	III.F.11.*d.*	Provide justification of waiver or documentation of preparedness and prevention requirements of 264 subpart C	270.14(b)(6)				Please provide an answer in the Submitted column!
236	IV.A.~.	Complete and submit Table IV.A. - Waste Management Information for new hazardous waste (HW) management facility or for a facility capacity expansion in hard copy and editable electronic format	305.50(a)(9)				Please provide an answer in the Submitted column!
237	IV.A.~.*a.*	For on-site, list “on-site” for the waste source; For off-site, list the source of the waste; If unknown, identify potential sources					Please provide an answer in the Submitted column!
239	IV.C.	Complete and submit Table IV.C. - Sampling and Analytical Methods in hard copy and editable electronic format	264.13(a), (b)(1-4), and (c)(2); 261 Appendix I; 261 Appendix II; 261 Appendix III; or any sampling method approved by EPA; 264.13(b)(5-8)				Please provide an answer in the Submitted column!
240	IV.D.	Provide Waste Analysis Plan:					Please provide an answer in the Submitted column!
241	IV.D.~.*a.*	Quality Control/Quality Assurance (Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1987, as revised;	SW-846; TCEQ QAPP; Part 261, Appendix I; 260.20; 260.21				
242	IV.D.~.*b.*	Latest version of the Quality Assurance Project Plan for the Texas Commission on Environmental Quality for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation and Recovery Act)					
243	IV.D.*1.*	For off-site facilities, specify procedures to inspect and analyze each movement of industrial waste received at the facility to ensure it matches the identity of the waste designated on the accompanying shipping ticket	264.13(c)(1)				Please provide an answer in the Submitted column!
244	IV.D.*2.*	Provide requirements pertaining to Land Disposal Restrictions	Part 268; 268.7(c); 264.13(a)				Please provide an answer in the Submitted column!
245	IV.D.*3.*	CONTAINERS: (The Applicant must address the following information and may provide it in the Container Engineering Report with cross reference here, or provide information here and reference it in the Container Engineering Report)	264 subpart I				
246	IV.D.*3.a.*	Demonstrate compatibility of waste with containers	264.172				Please provide an answer in the Submitted column!
247	IV.D.*3.b.*	For containers w/o secondary containment system, provide test procedures and results which show that wastes do not contain free liquid; suggested test for free liquid is the Paint Filter Liquid Test (Method 9095)	270.15(b)				Please provide an answer in the Submitted column!
248	IV.D.*3.c.*	Provide special requirements for ignitable or reactive wastes	264.176				Please provide an answer in the Submitted column!

249	IV.D.3.d.	Provide special requirements for incompatible wastes	264.177				Please provide an answer in the Submitted column!
250	IV.D.4.	TANKS: (The Applicant must address the following information and may provide it in the Tanks and Tank System Engineering Report with cross reference here, or provide information here and reference it in the Tank and Tank System Engineering Report)	264 subpart J				
251	IV.D.4.a.	Provide special requirements for ignitable or reactive wastes	264.198				Please provide an answer in the Submitted column!
252	IV.D.4.b.	Provide buffer zone requirements for tanks containing flammable and combustible liquids	264.198(b)				Please provide an answer in the Submitted column!
253	IV.D.4.c.	Provide special requirements for incompatible wastes	264.199				Please provide an answer in the Submitted column!
254	IV.D.5.	SURFACE IMPOUNDMENTS: (The Applicant must address the following information and may provide it in the Surface Impoundment Engineering Report with cross reference here, or provide information here and reference it in the Surface Impoundment Engineering Report)	264 subpart K				
255	IV.D.5.a.	Provide special requirements for ignitable or reactive wastes	264.229				Please provide an answer in the Submitted column!
256	IV.D.5.b.	Provide special requirements for incompatible wastes	264.23				Please provide an answer in the Submitted column!
257	IV.D.5.c.	Provide special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027, if applicable	264.231				Please provide an answer in the Submitted column!
258	IV.D.6.	WASTE PILES: (The Applicant must address the following information and may provide it in the Waste Pile Engineering Report with cross reference here, or provide information here and reference it in the Waste Pile Engineering Report)	264 subpart L				
259	IV.D.6.a.	For waste piles that are inside or under a structure, when an exemption from 264.251 is requested, provide test procedures and results, or other documentation or information which shows that the wastes do not contain free liquids when placed on the pile; Suggested test for free liquids, is the Paint Filter Liquid Test (Method 9095)	264.250(c)(1)				Please provide an answer in the Submitted column!
260	IV.D.6.b.	Demonstrate that the wastes will not generate leachate through decomposition or other reactions while being stored	264.250(c)(4)				Please provide an answer in the Submitted column!
261	IV.D.6.c.	Provide special requirements for ignitable or reactive wastes	264.256				Please provide an answer in the Submitted column!
262	IV.D.6.d.	Provide special requirements for incompatible wastes	264.257				Please provide an answer in the Submitted column!
263	IV.D.6.e.	Provide special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027, if applicable	264.259				Please provide an answer in the Submitted column!
264	IV.D.7.	LAND TREATMENT UNITS: (The Applicant must address the following information and may provide it in the LTU Engineering Report with cross reference here, or provide information here and reference it in the LTU Engineering Report)	264 subpart M				
265	IV.D.7.a.	Provide concentration and identification of hazardous constituents	264.271(b)				Please provide an answer in the Submitted column!
266	IV.D.7.b.	Provide special requirements for ignitable wastes	264.281				Please provide an answer in the Submitted column!
267	IV.D.7.c.	Provide special requirements for incompatible wastes	264.282				Please provide an answer in the Submitted column!
268	IV.D.7.d.	Provide special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027, if applicable	264.283				Please provide an answer in the Submitted column!
269	IV.D.8.	LANDFILLS: (The Applicant must address the following information and may provide it in the Landfill Engineering Report with cross reference here, or provide information here and reference it in the Landfill Engineering Report)	264 subpart N				
270	IV.D.8.a.	Provide special requirements for ignitable wastes	264.312				Please provide an answer in the Submitted column!
271	IV.D.8.b.	Provide special requirements for incompatible wastes	264.313				Please provide an answer in the Submitted column!
272	IV.D.8.c.	Provide special requirements for bulk and containerized liquids:	264.314				Please provide an answer in the Submitted column!
273	IV.D.8.c.1.	Bulk or non-containerized liquid	264.314(a)				Please provide an answer in the Submitted column!
274	IV.D.8.c.2.	Containers holding free liquids (Containers holding free liquids must not be placed in landfill)	264.314(b)				Please provide an answer in the Submitted column!
275	IV.D.8.c.3.	Test procedures and results or documentation to show that wastes do not contain free liquid. Test Method 9095 (Paint Filter Liquid Test)	264.314(c)				Please provide an answer in the Submitted column!
276	IV.D.8.c.4.	Containers holding free liquids must not be placed in landfill unless nonbiodegradable sorbents are used	264.314(d)(e)				Please provide an answer in the Submitted column!
277	IV.D.8.d.	Provide special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027, if applicable	264.317				Please provide an answer in the Submitted column!

278	IV.D.*9.*	INCINERATORS (covered under Section V.H)	335.152 (a)(13); 264 subpart O				Please provide an answer in the Submitted column!
279	IV.D.*10.*	BOILERS AND INDUSTRIAL FURNACES (covered under Section V.I)	335.221-225; 266 subpart H				Please provide an answer in the Submitted column!
281	V.~.	Provide required general information:					Please provide an answer in the Submitted column!
282	V.~.*1.*	Description of procedures, structures, or equipment used at the facility to:	270.14(b)(8)				Please provide an answer in the Submitted column!
283	V.~.*1.a.*	Prevent hazards in unloading operations	270.14(b)(8)(i)				Please provide an answer in the Submitted column!
284	V.~.*1.b.*	Prevent run-off from hazardous handling	270.14(b)(8)(ii)				Please provide an answer in the Submitted column!
285	V.~.*1.c.*	Prevent contamination of water supplies	270.14(b)(8)(iii)				Please provide an answer in the Submitted column!
286	V.~.*1.d.*	Mitigate effects of equipment failure	270.14(b)(8)(iv)				Please provide an answer in the Submitted column!
287	V.~.*1.e.*	Prevent undue exposure of personnel to hazardous waste (HW)	270.14(b)(8)(v)				Please provide an answer in the Submitted column!
288	V.~.*1.f.*	Prevent releases to atmosphere	270.14(b)(8)(vi)				Please provide an answer in the Submitted column!
289	V.~.*2.*	Traffic pattern, estimated volume (number and types of vehicles) and control; Description of access road surfacing and load bearing capacity; Traffic control sign should be shown	270.14(b)(10)				Please provide an answer in the Submitted column!
290	V.~.*3.*	Description of precautions to prevent accidental commingling of incompatible wastes in each of the units; Information should be provided to ensure that precautions are taken to avoid danger due to:	264.17(b)				Please provide an answer in the Submitted column!
291	V.~.*3.a.*	Generation of extreme heat or pressure, fire, explosion, or violent reaction	264.17(b)(1)				Please provide an answer in the Submitted column!
292	V.~.*3.b.*	Production of uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health	264.17(b)(2)				Please provide an answer in the Submitted column!
293	V.~.*3.c.*	Production of uncontrolled flammable fumes or gases in sufficient quantities to pose risk of fire or explosion	264.17(b)(3)				Please provide an answer in the Submitted column!
294	V.~.*3.d.*	Damaging the structural integrity of the device or facility containing the waste	264.17(b)(4)				Please provide an answer in the Submitted column!
295	V.~.*3.e.*	Threatening human health or the environmental by any other means	264.17(b)(5)				Please provide an answer in the Submitted column!
338	V.A.3.	Construction Schedules					
339	V.A.3.a.	Provide schedule of compliance for retrofitting (if applicable)	270.33(a)(2); 270.33(b)				Please provide an answer in the Submitted column!
340	V.A.3.b.	Provide construction schedule of commercial HW management units in the application for commercial HW management facilities, permit applications (new, renewal, or interim status applications, major amendments, or Class 3 modifications submitted after 11/23/94), adhering to the time limitation	305.149				Please provide an answer in the Submitted column!
342	V.B.	Container Storage Areas	335.152(a)(7); 264 subpart I				
343	V.B.1.	Provide an Engineering Report with information specified in: 264.170-173, 264.175-264.177, and 270.15	264.170-173; 264.175-177; 270.15				Please provide an answer in the Submitted column!
344	V.B.1.*a.*	Complete and submit Table V.B - Container Storage Areas in hard copy and editable electronic format					Please provide an answer in the Submitted column!
345	V.B.1.*b.*	Provide required additional information:					Please provide an answer in the Submitted column!
346	V.B.1.*b.1.*	Aisle space requirements					Please provide an answer in the Submitted column!
347	V.B.1.*b.2.*	Condition of containers					Please provide an answer in the Submitted column!
348	V.B.1.*b.3.*	Compatibility of waste with containers					Please provide an answer in the Submitted column!
349	V.B.1.*b.4.*	Container management practices					Please provide an answer in the Submitted column!
350	V.B.1.*b.5.*	Air Emission Standards (Part 264 Subpart AA, BB, and CC Requirements)					Please provide an answer in the Submitted column!
351	V.B.2.	Provide the design and operation for containment system including diagrams and engineering drawings (plans):	270.15				Please provide an answer in the Submitted column!
352	V.B.2.~.*1.*	A base which is free of cracks or gaps must underlay the containers; the base must be sloped, or the containment system must be designed and operated to drain and remove liquids resulting from leaks, spills or precipitation	264.175(b)(1-2)				Please provide an answer in the Submitted column!
353	V.B.2.~.*2.*	Overflow prevention	264.175(b)(5); 270.15(a)(5)				Please provide an answer in the Submitted column!
354	V.B.2.~.*3.*	Basic design parameters, dimensions, and materials of construction	270.15(a)(1)				Please provide an answer in the Submitted column!
355	V.B.2.~.*4.*	Drainage design:	270.15(a)(2)				Please provide an answer in the Submitted column!
356	V.B.2.a.	Containment system must have sufficient capacity to contain 10% volume of containers or volume of largest container (TCEQ recommends 25-yr, 24-hr rainfall event for extra capacity of uncovered areas)	264.175(b)(3), 270.15(a)(3)				Please provide an answer in the Submitted column!
357	V.B.2.b.	Run-on prevention (TCEQ recommends 25-yr, 24-hr rainfall event to calculate the excess capacity)	264.175(b)(4); 270.15(a)(4)				Please provide an answer in the Submitted column!
358	V.B.3.	Wastes Containing No Free Liquids	264.175(c)				

359	V.B.3.~.	Storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system, provided that:					
360	V.B.3.~.1.	Storage area is sloped or designed and operated to drain and remove liquid resulting from precipitation; Submit a demonstration	264.175(c)(1)				Please provide an answer in the Submitted column!
361	V.B.3.~.2.	Containers are elevated or otherwise protected from contact with accumulated liquid the following info; Submit a demonstration that includes:	264.175(c)(2)				Please provide an answer in the Submitted column!
362	V.B.3.a.	Test procedures and results that wastes do not contain free liquid	270.15(b)(1)				Please provide an answer in the Submitted column!
363	V.B.3.b.	Design and operation of storage to remove and drain liquids	270.15(b)(2)				Please provide an answer in the Submitted column!
364	V.B.3.~.3.	Provide the design and operation (264.175(b)) for containers holding Dioxin wastes (FO20, FO21, FO22, FO23, FO26 and FO27) that do not contain free liquids	264.175(d)				Please provide an answer in the Submitted column!
365	V.B.4.	Provide engineering report drawings with buffer zone requirements if container storage area manages ignitable or reactive wastes	264.17; 264.176				Please provide an answer in the Submitted column!
366	V.B.5.	Provide information here about special requirements of incompatible wastes, or reference information provided in Section IV	264.177				Please provide an answer in the Submitted column!
367	V.B.6.	Management of nonhazardous waste in CSA: If facilities are managing nonhazardous wastes, the types, quantities, and other information on the nonhazardous waste may need to be included as part of CSA Engineering Report and Table V.B. if applicable					Please provide an answer in the Submitted column!
368	V.B.7.	Provide detailed plans and specifications individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	270.14; 305.50(a)(7)				Please provide an answer in the Submitted column!
369	V.C.	Tanks and Tank Systems	335.152(a)(8); 264 subpart J				
370	V.C.~.	Provide an Engineering Report with information specified in: 264.190-194, 264.196, 264.198-199, and 270.16.	264.190-194; 264.196; 264.198-199; 270.16				Please provide an answer in the Submitted column!
371	V.C.1.	Complete and submit Table V.C. - Tanks and Tank System in hard copy and editable electronic format					Please provide an answer in the Submitted column!
372	V.C.2.	If tank will manage ignitable or reactive waste, describe and provide drawings demonstrating the buffer zone requirements in the engineering report	264.17; 264.198				Please provide an answer in the Submitted column!
373	V.C.3.	If tank will manage incompatible waste, describe special requirements and procedures	264.17; 264.199				Please provide an answer in the Submitted column!
374	V.C.4.	Submit written assessments and certification and reviewed by a licensed PE for existing tank system(s) without adequate secondary containment	264.191; 264.193; 270.11(d)				Please provide an answer in the Submitted column!
375	V.C.5.	Specify if tank has been derated or if the permitted capacity is different from the design capacity					Please provide an answer in the Submitted column!
376	V.C.6.	Provide in the report for Tanks and Tank Systems all applicable aspects listed below, with supporting drawings, calculations, and certifications provided as attachments:					Please provide an answer in the Submitted column!
377	V.C.6.a.	40 CFR 264.193 Exemption from Secondary Containment Requirements: a) Based on management of <u>No Free Liquids</u> in Tanks within a building with an impermeable flooring; OR, b) Based on tanks systems and sumps that serve as secondary containment to collect or contain releases of hazardous materials	264.190(a); 264.190(b)				Please provide an answer in the Submitted column!
378	V.C.6.b.	Address response to leaks, spills and/or the disposition of leaking or unfit for-use tank systems, including:	264.196				Please provide an answer in the Submitted column!
379	V.C.6.b.1.	Cessation of use; prevent flow or addition of wastes	264.196(a)				Please provide an answer in the Submitted column!
380	V.C.6.b.2.	Removal of waste from tank system or secondary containment system	264.196(b)				Please provide an answer in the Submitted column!
381	V.C.6.b.3.	Containment of visible releases to environment	264.196(c)				Please provide an answer in the Submitted column!
382	V.C.6.b.4.	Notification, reports	264.196(d)				Please provide an answer in the Submitted column!
383	V.C.6.b.5.	Notification of secondary containment repair	264.196(e)				Please provide an answer in the Submitted column!
384	V.C.6.b.6.	Certification of major repairs	264.196(f)				Please provide an answer in the Submitted column!
385	V.C.6.c.	Provide assessment of existing tank system, including:	264.191				Please provide an answer in the Submitted column!
386	V.C.6.c.1.	Assessment of existing system's integrity certified by a licensed PE	264.191(a)				Please provide an answer in the Submitted column!
387	V.C.6.c.2.	Design standards	264.191(b)(1)				Please provide an answer in the Submitted column!
388	V.C.6.c.3.	Hazardous characteristics of wastes in tanks	264.191(b)(2)				Please provide an answer in the Submitted column!

389	V.C.6.c.4.	Existing corrosion protection	264.191(b)(3)				Please provide an answer in the Submitted column!
390	V.C.6.c.5.	Age of tank(s)	264.191(b)(4)				Please provide an answer in the Submitted column!
391	V.C.6.c.6.	For non-enterable tanks - Leak test/integrity examination	264.191(b)(5)				Please provide an answer in the Submitted column!
392	V.C.6.d.	Provide assessment of new tank systems or components, including:	264.192				Please provide an answer in the Submitted column!
393	V.C.6.d.1.	Assessment of new tank system's integrity certified by a licensed PE	264.192(a); 270.11(d); 270.16(a)				Please provide an answer in the Submitted column!
394	V.C.6.d.2.	Design standards	264.192(a)(1)				Please provide an answer in the Submitted column!
395	V.C.6.d.3.	Hazardous characteristics of wastes	264.192(a)(2)				Please provide an answer in the Submitted column!
396	V.C.6.d.4.	Existing corrosion protection	264.192(a)(3)(i-ii)				Please provide an answer in the Submitted column!
397	V.C.6.e.	Provide tank system(s) plans and specifications, including:					Please provide an answer in the Submitted column!
398	V.C.6.e.1.	Dimensions and capacity	270.16(b)				Please provide an answer in the Submitted column!
399	V.C.6.e.2.	Feed systems	270.16(c)				Please provide an answer in the Submitted column!
400	V.C.6.e.3.	Piping, instrumentation, process flow	270.16(d)				Please provide an answer in the Submitted column!
401	V.C.6.e.4.	External corrosion protection	270.16(e)				Please provide an answer in the Submitted column!
402	V.C.6.e.5.	Description of tank system installation and testing plans and procedures	270.16(f)				Please provide an answer in the Submitted column!
403	V.C.6.e.6.	Plans and description of the design, construction and operation of the secondary containment system for each tank system	270.16(g)				Please provide an answer in the Submitted column!
404	V.C.6.e.7.	Description of overfill and spill control as required under 264.194(b):	270.16(i)				Please provide an answer in the Submitted column!
405	V.C.6.e.7.a.	Spill prevention controls	264.194(b)(1)				Please provide an answer in the Submitted column!
406	V.C.6.e.7.b.	Overfill prevention controls	264.194(b)(2)				Please provide an answer in the Submitted column!
407	V.C.6.e.7.c.	Maintenance of sufficient freeboard for uncovered tanks if no other controls to prevent overfilling	264.194(b)(3)				Please provide an answer in the Submitted column!
408	V.C.6.e.8.	Special requirements for ignitable or reactive wastes	264.198; 270.16(j)				Please provide an answer in the Submitted column!
409	V.C.6.e.9.	Special requirements for incompatible wastes.	264.199; 270.16(j)				Please provide an answer in the Submitted column!
410	V.C.6.e.10.	Information on air emission control equipment as required in 270.27	270.16(k)				Please provide an answer in the Submitted column!
411	V.C.6.f.	Secondary containment system: Should be capable of detecting and accumulating releases until collected material is removed	264.193(b)(1); 264.193(b)(2)				
412	V.C.6.f.1.	Provide minimum requirements, including:	264.193(c)				Please provide an answer in the Submitted column!
413	V.C.6.f.1.a.	Compatibility, strength	264.193(c)(1)				Please provide an answer in the Submitted column!
414	V.C.6.f.1.b.	Foundation strength	264.193(c)(2)				Please provide an answer in the Submitted column!
415	V.C.6.f.1.c.	Detect leak within 24 hours	264.193(c)(3)				Please provide an answer in the Submitted column!
416	V.C.6.f.1.d.	Drain/remove liquid within 24 hours	264.193(c)(4)				Please provide an answer in the Submitted column!
417	V.C.6.f.2.	Include one or more of the following devices for secondary containment:	264.193(d)				Please provide an answer in the Submitted column!
418	V.C.6.f.2.a.	Liner external to the tank	264.193(d)(1)				Please provide an answer in the Submitted column!
419	V.C.6.f.2.b.	Vault	264.193(d)(2)				Please provide an answer in the Submitted column!
420	V.C.6.f.2.c.	Double-walled tank	264.193(d)(3)				Please provide an answer in the Submitted column!
421	V.C.6.f.2.d.	Justification for equivalent device submitted	264.193(d)(4)				Please provide an answer in the Submitted column!
422	V.C.6.g.	Provide documentation of containment requirements, including:	264.193(e)				Please provide an answer in the Submitted column!
423	V.C.6.g.1.	Tanks using External Liners and/or Vault Systems must contain 100% of the capacity of the largest tank plus 25-yr, 24-hr infiltration or run-on	264.193(e)(1)(i); 264.193(e)(2)(i); 264.193(e)(1)(ii); 264.193(e)(2)(ii)				Please provide an answer in the Submitted column!
424	V.C.6.g.2.	External liner must be free of cracks or gaps, and must be designed and installed to surround the tank	264.193(e)(1)(iii); 264.193(e)(1)(iv)				Please provide an answer in the Submitted column!
425	V.C.6.g.3.	Vault must be constructed with chemical resistant water stops in all joints and provided with an impermeable interior coating, means to protect against formation of ignitable vapors, and an exterior moisture barrier or an alternate means to protect against moisture incursion	264.193(e)(2)(iii); 264.193(e)(2)(iv); 264.193(e)(2)(v); 264.193(e)(2)(vi)				Please provide an answer in the Submitted column!
426	V.C.6.h.1.	A double-walled tank must completely envelope inner tank as an integral structure;	264.193(e)(3)(i)				Please provide an answer in the Submitted column!
427	V.C.6.h.2.	Protected from corrosion of both the interior and exterior tank shells.	264.193(e)(3)(ii)				Please provide an answer in the Submitted column!
428	V.C.6.h.3.	Provided with built-in continuous leak protection system	264.193(e)(3)(iii)				Please provide an answer in the Submitted column!
429	V.C.6.i.	Secondary containment for ancillary equipment.	264.193(f)				Please provide an answer in the Submitted column!
430	V.C.6.j.1.	Variance from secondary containment from the requirements of 264.193 & 264.193(g):	270.16(h)				Please provide an answer in the Submitted column!
431	V.C.6.j.2.	Variance based on demonstration of equivalent protection of groundwater and surface.	264.193(g)(1)(i-iv)				Please provide an answer in the Submitted column!
432	V.C.6.j.3.	Variance on demonstration if no substantial present or potential hazard.	264.193(g)(2)(i-iv)				Please provide an answer in the Submitted column!

433	V.C.7.	Provide Inspection Requirements (may provide information either in the tank report with a complete Table III-D, or in Section III) and submit in hard copy and editable electronic format	264.195				Please provide an answer in the Submitted column!
434	V.C.8.	Provide detailed plans and specifications individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	270.14(a); 305.50(a)(7)				Please provide an answer in the Submitted column!
435	V.D.	Surface Impoundments (SI)	335.152(a)(9); 264 subpart K				
436	V.D.~.	Submit a surface impoundment report including at a minimum:	270.17				Please provide an answer in the Submitted column!
437	V.D.~.a.	Costs associated with above-grade construction and the potential adverse effects	305.50(a)(5)				Please provide an answer in the Submitted column!
438	V.D.~.b.	For new SI located in recharge zone must include a hydrogeologic report prepared by a licensed professional geoscientist or PE along with the Registered Engineering Firm's name and Registration Number	305.50(a)(6)				Please provide an answer in the Submitted column!
439	V.D.~.c.	Construction quality assurance program.	264.19; EPA Publications 530-SW-85-014 and EPA/600/R-93/182, as applicable				Please provide an answer in the Submitted column!
440	V.D.~.d.	Action leakage rate.	264.222; 270.17(b)(5)				Please provide an answer in the Submitted column!
441	V.D.~.e.	Response action plan.	264.223; 270.17(b)(5)				Please provide an answer in the Submitted column!
442	V.D.~.f.	Liner system exemption requests.	335.168(b); 264.221(b)				Please provide an answer in the Submitted column!
443	V.D.~.g.	Monitoring and inspection during construction.	264.226(a)				Please provide an answer in the Submitted column!
444	V.D.~.h.	Emergency repairs contingency plans.	264.227				Please provide an answer in the Submitted column!
445	V.D.1.	Complete and submit Table V.D.1. - Surface Impoundments in hard copy and editable electronic format	270.17(a)				Please provide an answer in the Submitted column!
446	V.D.2.	If SI will manage ignitable or reactive wastes as indicated in Table V.D.1., include 264.17 & 264.229 requirements in the engineering report	264.17(g); 264.229				Please provide an answer in the Submitted column!
447	V.D.3.	If SI will manage incompatible wastes as indicated in Table V.D.1., include 264.17 and 264.230 requirements in the engineering report	264.17(h); 264.230				Please provide an answer in the Submitted column!
448	V.D.4.	If SI will manage FO20, FO21, FO22, FO23, FO26, & FO27 as indicated in Table V.D.1., include 264.231 requirement in the engineering report	264.231				Please provide an answer in the Submitted column!
449	V.D.5.	Describe the SI; include a plan view and cross-section					Please provide an answer in the Submitted column!
450	V.D.6.	Freeboard: address Overtopping prevention resulting from:	335.168(g); 264.221(g); 270.17(b)(6)				Please provide an answer in the Submitted column!
451	V.D.6.a.	Overtopping prevention from 100-yr, 24-hr storm	335.168(g)				Please provide an answer in the Submitted column!
452	V.D.6.b.	Overfilling	335.168(g); 264.221(g)				Please provide an answer in the Submitted column!
453	V.D.6.c.	Wind	335.168(g); 264.221(g)				Please provide an answer in the Submitted column!
454	V.D.6.d.	Wave action	335.168(g); 264.221(g)				Please provide an answer in the Submitted column!
455	V.D.6.e.	Rainfall	335.168(g); 264.221(g)				Please provide an answer in the Submitted column!
456	V.D.6.f.	Run-off/Run-on	335.168(g); 264.221(g)				Please provide an answer in the Submitted column!
457	V.D.6.g.	Malfunctions of level controllers	335.168(g); 264.221(g)				Please provide an answer in the Submitted column!
458	V.D.7.a.	Waste Flow: If SI has inflow, describe overtopping prevention and provide appropriate detailed drawings	335.168(g); 264.221(g)				Please provide an answer in the Submitted column!
459	V.D.7.b.	If SI is of flow-through design, describe the flow of waste including hydraulic profile					Please provide an answer in the Submitted column!
460	V.D.8.	Provide dike construction engineering drawings, diagrams and plans, including:	264.221(h); 335.168(h)				Please provide an answer in the Submitted column!
461	V.D.8.a.	Dike engineering certification, certified by a licensed PE	264.226(c); 305.50(a)(7)				Please provide an answer in the Submitted column!
462	V.D.8.a.1.	Stress of pressure from wastes	264.226(c)(1)				Please provide an answer in the Submitted column!
463	V.D.8.a.2.	Will not fail due to scouring or piping	264.226(c)(2)				Please provide an answer in the Submitted column!
464	V.D.8.b.	Structural integrity certified by a licensed PE	264.226(c); 270.17(d)				Please provide an answer in the Submitted column!
465	V.D.8.c.	Report on dike design should include:	335.168(i)				Please provide an answer in the Submitted column!
466	V.D.8.c.1.	Slope stability analysis					Please provide an answer in the Submitted column!
467	V.D.8.c.2.	Hydrostatic and hydrodynamic					Please provide an answer in the Submitted column!
468	V.D.8.c.3.	Storm loading					Please provide an answer in the Submitted column!
469	V.D.8.c.4.	Rapid draw down					Please provide an answer in the Submitted column!
470	V.D.8.d.	Protective cover for earthen dikes (describe protective cover and installation and maintenance)					Please provide an answer in the Submitted column!

471	V.D.9.	Containment System	335.168(i)				Please provide an answer in the Submitted column!
472	V.D.9.a.	Complete and submit Table V.D.6 - Surface Impoundment Liner System in hard copy and editable electronic format	264.221				Please provide an answer in the Submitted column!
473	V.D.9.b.	Include analysis for the following in the Engineering Report:					Please provide an answer in the Submitted column!
474	V.D.9.b.~.*a.*	For artificial liners:	335.168(i); 264.221(a)				Please provide an answer in the Submitted column!
475	V.D.9.b.1.	Seaming method					Please provide an answer in the Submitted column!
476	V.D.9.b.2.	Surface preparation method					Please provide an answer in the Submitted column!
477	V.D.9.b.3.	Tensile strength					Please provide an answer in the Submitted column!
478	V.D.9.b.4.	Impact resistance					Please provide an answer in the Submitted column!
479	V.D.9.b.5.	Compatibility demonstration					Please provide an answer in the Submitted column!
480	V.D.9.b.6.	Foundation design (including settlement potential, bearing capacity and stability, and potential for bottom heave blow-out) for soil liners					Please provide an answer in the Submitted column!
481	V.D.9.b.~.*b.*	For Soil Liners:	335.168(i)				Please provide an answer in the Submitted column!
482	V.D.9.b.7.	Waste migration					Please provide an answer in the Submitted column!
483	V.D.9.b.8.	Atterberg Limits, % passing a # 200 sieve, and permeability					Please provide an answer in the Submitted column!
484	V.D.9.b.9.	Moisture Content					Please provide an answer in the Submitted column!
485	V.D.9.b.10.	Standard Proctor Density & compaction data					Please provide an answer in the Submitted column!
486	V.D.9.b.~.*c.*	For Leachate Collection Systems:	335.168(i); 264.221(c)(2)				Please provide an answer in the Submitted column!
487	V.D.9.b.11.	Pipe Material and Strength					Please provide an answer in the Submitted column!
488	V.D.9.b.12.	Pipe Network Spacing and Grading					Please provide an answer in the Submitted column!
489	V.D.9.b.13.	Collection Sump(s) Material and Strength					Please provide an answer in the Submitted column!
490	V.D.9.b.14.	Drainage Media Specifications and Performance					Please provide an answer in the Submitted column!
491	V.D.9.b.15.	Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe					Please provide an answer in the Submitted column!
492	V.D.9.b.16.	Compatibility Demonstration	264.221(c)(2)(iii)				Please provide an answer in the Submitted column!
493	V.D.9.b.17.	Capacity of System:	264.221(c)(2)(iv-v)				Please provide an answer in the Submitted column!
494	V.D.9.b.17.a.	rate of leachate removal					Please provide an answer in the Submitted column!
495	V.D.9.b.17.b.	capacity of sumps					Please provide an answer in the Submitted column!
496	V.D.9.b.17.c.	thickness of mounding and maximum hydraulic head					Please provide an answer in the Submitted column!
497	V.D.9.c.	Specify installation date and expected life of liner system					Please provide an answer in the Submitted column!
498	V.D.9.d.	Provide tests or documentation for whether the liner is chemically resistant to waste and how this resistance was determined	335.168(a)(1-2)				Please provide an answer in the Submitted column!
499	V.D.9.e.	Submit a QA/QC Plan for all components					Please provide an answer in the Submitted column!
500	V.D.9.f.	Submit Response Action Plan for exceedances of Action Leakage Rate	264.223(a)				Please provide an answer in the Submitted column!
501	V.D.10.	For new and existing impoundment(s), lateral expansion(s) or replacements of existing units, you must meet minimum technological requirements (MTR) unless an appropriate waiver is granted by the Commission. MTR must address:	335.168; 264.221				Please provide an answer in the Submitted column!
502	V.D.10.*a.*	Liner system requirements (must install 2 or more liners):					Please provide an answer in the Submitted column!
503	V.D.10.*a.1.*	Constructed with sufficient strength and thickness	335.168(a)(1); 264.221(a)(1)				Please provide an answer in the Submitted column!
504	V.D.10.*a.2.*	Placed upon foundation	335.168(a)(2); 264.221(a)(2)				Please provide an answer in the Submitted column!
505	V.D.10.*a.3.*	Installed to cover surrounding earth likely to be in contact with waste or leachate	335.168(a)(3); 264.221(a)(3)				Please provide an answer in the Submitted column!
506	V.D.10.*a.4.*	A top liner must be constructed with geomembrane to prevent migration of hazardous	264.221(c)(1)(i)(A) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
507	V.D.10.*a.5.*	A composite bottom liner consisting of at least 2 components constructed of at least 3 ft. or compacted soil	264.221(c)(1)(i)(B) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
508	V.D.10.*b.*	Leakage detection system must be designed constructed with at a minimum:	264.221(c)(2) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
509	V.D.10.*b.1.*	1% or more bottom slope	264.221(c)(2)(i) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
510	V.D.10.*b.2.*	1x 10-1cm/s hydraulic conductivity, 12 in. (30.5 cm) thickness, or synthetic drainage(geonet) with transmissivity of 3X10-4 m2sec or more	264.221(c)(2)(ii) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
511	V.D.10.*b.3.*	Chemical resistant to waste	264.221(c)(2)(iii) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!

512	V.D.10.*b.4.*	Minimize clogging	264.221(c)(2)(iv) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
513	V.D.10.*b.5.*	Sumps and liquid removal methods	264.221(c)(2)(v) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
514	V.D.10.*c.*	Collect and remove pumpable liquids in the sumps	264.221(c)(3) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
515	V.D.10.*d.*	Liner system location relative to high water table	264.221(c)(4) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
516	V.D.11.	Run-on Diversion: Describe prevention of run-on to active portion from 100-yr storm	264.221(g); 335.168 (g)				Please provide an answer in the Submitted column!
517	V.D.12.	If submitting alternate design and operating practices for a SI, provide demonstration that alternative design and operating practices, with location characteristics, will:	264.221(d) [as referenced in 335.168(d)]				Please provide an answer in the Submitted column!
518	V.D.12.a.	Prevent migration into the groundwater or surface water at least as effectively as the standard system specified by 40 CFR 264.22(c)	264.221(d)(1) [as referenced in 335.168(d)]				Please provide an answer in the Submitted column!
519	V.D.12.b.	Allow detection of leaks of hazardous constituents through the top liner at least as effectively as the system specified in 40 CFR 264.221(c)	264.221(d)(2) [as referenced in 335.168(c)]				Please provide an answer in the Submitted column!
520	V.D.13.	If seeking an exemption from double liner requirements for monofills, provide detailed plans and specifications with descriptions demonstrating at least equivalent effectiveness of the planned unit compared to one with a double liner system	335.168(e); 264.221(e)				Please provide an answer in the Submitted column!
521	V.D.*14.*	Provide detailed plans and specifications, individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	305.50(a)(7)				Please provide an answer in the Submitted column!
522	V.E.	Waste Piles (WP)	335.152(a)(10); 264 subpart L				
523	V.E.~.	Submit a waste pile engineering report, including at the minimum:	270.18				Please provide an answer in the Submitted column!
524	V.E.~.*a.*	Liner description (design, operation, installation, construction and leachate collection system). For new waste pile unit or lateral expansion of existing unit, must comply with 264.251 (c)	335.170(a)(1-2); 264.251(a)				Please provide an answer in the Submitted column!
525	V.E.~.*b.*	Construction quality assurance program	264.19; EPA Publications 530-SW-85-014 and 600-R-93-182				Please provide an answer in the Submitted column!
526	V.E.~.*c.*	Waste piles that are under a structure and protected from precipitation are not subject to 264.251 so long as:	264.250(c) [as referenced in 335.170(c)]				Please provide an answer in the Submitted column!
527	V.E.~.*c.1.*	Free liquids are not placed in the waste pile	264.250(c)(1) [as referenced in 335.170(c)]				Please provide an answer in the Submitted column!
528	V.E.~.*c.2.*	Protected from precipitation run-on	264.250(c)(2) [as referenced in 335.170(c)]				Please provide an answer in the Submitted column!
529	V.E.~.*c.3.*	Wind dispersal is controlled	264.250(c)(3) [as referenced in 335.170(c)]				Please provide an answer in the Submitted column!
530	V.E.~.*c.4.*	Will not generate leachate	264.250(c)(4) [as referenced in 335.170(c)]				Please provide an answer in the Submitted column!
531	V.E.~.*d.*	Calculation of action leakage rate	264.252				Please provide an answer in the Submitted column!
532	V.E.~.*e.*	Response action plan	264.253				Please provide an answer in the Submitted column!
533	V.E.~.*f.*	Monitoring and inspection during construction	264.254(a)				Please provide an answer in the Submitted column!
534	V.E.1.	Complete and submit Table V.E.1 - Waste Piles in hard copy and editable electronic format	270.18(a)				Please provide an answer in the Submitted column!
535	V.E.2.	If WP will manage ignitable or reactive wastes as indicated in Table V.E.1, include 264.17 & 264.256 requirements in the engineering report	264.17; 264.256				Please provide an answer in the Submitted column!
536	V.E.3.	If WP will manage incompatible wastes as indicated in Table V.E.1, include 264.17 & 264.257 requirements in the engineering report	264.17; 264.257				Please provide an answer in the Submitted column!
537	V.E.4.	If WP will manage FO20, FO21, FO22, FO23, FO26, FO27 as indicated in Table V.D.1, include 264.231 requirement in the engineering report	264.259				Please provide an answer in the Submitted column!
538	V.E.5.	Describe WP design and construction	270.18(c)				Please provide an answer in the Submitted column!

539	V.E.6.	Containment System (applicable to new waste piles and new portions of existing waste piles): Provide containment system design and construction	335.170; Tech. Guidance No. 6; EPA Publications 530-SW-85-014 and 600-R-93-182				Please provide an answer in the Submitted column!
540	V.E.6.a.	Complete and submit liner description (Table V.E.3 - Waste Pile Liner System) in hard copy and editable electronic format					Please provide an answer in the Submitted column!
541	V.E.6.b.	Liner engineering report (design, installation, construction, and operation of the liner and leachate collection system.), include in the analyses:	264.251				Please provide an answer in the Submitted column!
542	V.E.6.b.~.a.	For Artificial Liners:					Please provide an answer in the Submitted column!
543	V.E.6.b.1.	Seaming method					Please provide an answer in the Submitted column!
544	V.E.6.b.2.	Surface preparation method					Please provide an answer in the Submitted column!
545	V.E.6.b.3.	Tensile strength					Please provide an answer in the Submitted column!
546	V.E.6.b.4.	Impact resistance					Please provide an answer in the Submitted column!
547	V.E.6.b.5.	Compatibility demonstration					Please provide an answer in the Submitted column!
548	V.E.6.b.6.	Foundation design (including settlement potential, bearing capacity and stability, and potential for bottom heave blow-out)					Please provide an answer in the Submitted column!
549	V.E.6.b.~.b.	For Soil liners:					Please provide an answer in the Submitted column!
550	V.E.6.b.7.	Waste migration analysis (based on head, porosity, and permeability)					Please provide an answer in the Submitted column!
551	V.E.6.b.8.	Atterberg limits, % passing a #200 sieve, and permeability					Please provide an answer in the Submitted column!
552	V.E.6.b.9.	Moisture content					Please provide an answer in the Submitted column!
553	V.E.6.b.10.	Standard proctor density, compaction data					Please provide an answer in the Submitted column!
554	V.E.6.b.~.c.	For leachate detection, collection, and removal system: 264.251 requirements are for any new and/or lateral expansion of waste pile unit	264.251(a)(2); 264.251(c)(2) [as referenced in 335.170(d)]				Please provide an answer in the Submitted column!
555	V.E.6.b.11.	Capacity of system: rate of leachate removal; capacity of sumps; and thickness of mounding and maximum hydraulic head	264.251(a)(2); 264.251(c)(3)				Please provide an answer in the Submitted column!
556	V.E.6.b.12.	Pipe material strength	264.251(a)(2); 264.251(c)(3)				Please provide an answer in the Submitted column!
557	V.E.6.b.13.	Pipe network spacing and grading	264.251(a)(2); 264.251(c)(3)				Please provide an answer in the Submitted column!
558	V.E.6.b.14.	Collection sump(s) material and strength	264.251(a)(2); 264.251(c)(3)				Please provide an answer in the Submitted column!
559	V.E.6.b.15.	Drainage media specifications and performance	264.251(a)(2); 264.251(c)(3)				Please provide an answer in the Submitted column!
560	V.E.6.b.16.	Analysis showing that pipe and perforation size will prevent clogging and allow free liquid access to the pipe	335.170(a)(2)(B)				Please provide an answer in the Submitted column!
561	V.E.6.b.17.	Compatibility demonstration					Please provide an answer in the Submitted column!
562	V.E.6.c.	Installation date and expected life of liner system					Please provide an answer in the Submitted column!
563	V.E.6.d.	Tests or documentation that liner is chemically resistant to waste	335.170(a)(2)(A)(i)				Please provide an answer in the Submitted column!
564	V.E.6.e.	QA/QC plan					Please provide an answer in the Submitted column!
565	V.E.6.f.	Submit Response Action Plan for exceedances of Action Leakage Rate	264.253(a)				Please provide an answer in the Submitted column!
566	V.E.7.	Describe practices of wind dispersal system control	335.170(j); 264.251(j)				Please provide an answer in the Submitted column!
567	V.E.8.	Describe measures of Run-on Diversion control:	335.170(g); 264.251(g)				Please provide an answer in the Submitted column!
568	V.E.8.a.	System prevents flow onto active portion from peak discharge of at least a 100-yr, 24-hr storm	335.170(g); 264.251(g)				Please provide an answer in the Submitted column!
569	V.E.8.b.	Include analyses of rates of flow, run-on volume and depth, and backwater calculations					Please provide an answer in the Submitted column!
570	V.E.8.c.	Collection and holding facilities managed expeditiously after storm	335.170(i); 264.251(i)				Please provide an answer in the Submitted column!
571	V.E.9.	Describe measures of Run-off Control:	335.170(h); 264.251(h)				Please provide an answer in the Submitted column!
572	V.E.9.a.	System collects and controls run-off volume resulting from 100-yr, 24-hr storm	335.170(h); 264.251 (h)				Please provide an answer in the Submitted column!
573	V.E.9.b.	Collection and holding facilities managed expeditiously	335.170(i); 264.251(i)				Please provide an answer in the Submitted column!
574	V.E.9.c.	Include run-off volume calculations					Please provide an answer in the Submitted column!
575	V.E.10.	Design operating procedures: Must describe residuals (i.e. leachate) and the management process and the equipment used	335.170; 264.251; 264.254				Please provide an answer in the Submitted column!
576	V.E.11.	Description and list of equipment used: Must describe procedures used to place the waste in or on the pile and ensure that the containment system is protected from plant growth	264.251; 264.254; 305.45(a)(8)(C); 335.170(k)				Please provide an answer in the Submitted column!

577	V.E.12.	For an exemption from liner and leachate collection requirements, include:	335.170(b); 264.251(b); 264.251(d) [new WP]				Please provide an answer in the Submitted column!
578	V.E.12.a.	Prevention of waste migrating into ground or surface water at least as effectively as liners, etc.					Please provide an answer in the Submitted column!
579	V.E.12.b.	Will allow detection of leaks through liner at least as effectively					Please provide an answer in the Submitted column!
580	V.E.13.	Demonstrate WP exemption from ground-water monitoring by meeting the following standards:	264.250(c); 264.90(b)				Please provide an answer in the Submitted column!
581	V.E.13.a.	Waste pile location entirely above seasonal high water table					Please provide an answer in the Submitted column!
582	V.E.13.b.	Waste pile inside or under some sort of structure and:	264.250(c)				Please provide an answer in the Submitted column!
583	V.E.13.b.1.	Contains no liquid waste	264.250(c)(1); 264.90(b)(2)(ii)				Please provide an answer in the Submitted column!
584	V.E.13.b.2.	Protected from surface water run-on	264.250(c)(2); 264.90(b)(2)(iii)				Please provide an answer in the Submitted column!
585	V.E.13.b.3.	Has wind dispersal control without wetting waste	264.250(c)(3)				Please provide an answer in the Submitted column!
586	V.E.13.b.4.	Will not generate leachate	264.250(c)(4)				Please provide an answer in the Submitted column!
587	V.E.13.c.	Leachate collection and removal system must be above the top liner	264.90(b)(2)				Please provide an answer in the Submitted column!
588	V.E.13.d.	Liners must be of sufficient strength and thickness to prevent failure, cracking, etc. and:	264.90(b)(2)				Please provide an answer in the Submitted column!
589	V.E.13.d.1.a.	Waste pile must be underlain by 2 liners and a leak detection system to prevent migration	264.90(b)(2)(iv) and (v)				Please provide an answer in the Submitted column!
590	V.E.13.d.1.b.	Demonstration of low potential for migration to uppermost aquifer during life of waste pile including closure period	264.90(b)(2)(vi) and (vii)				Please provide an answer in the Submitted column!
591	V.E.13.d.2.a.	Waste pile must be underlain by a liner that is designed, constructed and installed to prevent migration; and	264.90(b)(2)				Please provide an answer in the Submitted column!
592	V.E.13.d.2.b.	Waste must be removed periodically to inspect liner for signs of deterioration, cracks, etc.	335.170(k)				Please provide an answer in the Submitted column!
593	V.E.*14.*	Provide detailed plans and specifications individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm’s name and Registration Number	305.50(a)(7)				Please provide an answer in the Submitted column!
594	V.F.	Land Treatment Units (LTU)	335.152(a)(11); 264 subpart M				
595	V.F.~.	Engineering Report: Submit a land treatment unit report, including at a minimum:	270.2				Please provide an answer in the Submitted column!
596	V.F.~.*a.*	Unsuitable site characteristics (covered under Section II.A & B)	335.204(c)				Please provide an answer in the Submitted column!
597	V.F.~.*b.*	For a new LTU to be located in recharge zone of a regional aquifer, submit a hydrogeologic report prepared by a licensed professional geoscientist or PE along with the Registered Engineering Firm’s name and Registration Number	305.50(a)(6)				Please provide an answer in the Submitted column!
598	V.F.~.*c.*	Recordkeeping	264.279				Please provide an answer in the Submitted column!
599	V.F.1.	Complete and submit Tables V.F.1 - Land Treatment Units and V.F.2 - Land Treatment Unit Capacity in hard copy and editable electronic format					Please provide an answer in the Submitted column!
600	V.F.1.~.	For a new LTU, provide the horizontal and vertical dimensions approved by the Regional Administrator. The maximum depth of treatment zone is:	264.271(c)				Please provide an answer in the Submitted column!
601	V.F.1.a.	No more than 1.5 m (5 ft.) from the surface	264.271(c)(1)				Please provide an answer in the Submitted column!
602	V.F.1.b.	More than 1 m (3 ft.) above the seasonal high water table	264.271(c)(2)				Please provide an answer in the Submitted column!
603	V.F.2.	If the LTU will manage incompatible or reactive wastes, as indicated in Table V.F.1, include the requirements of 264.17 & 264.281 in the engineering report	264.281				Please provide an answer in the Submitted column!
604	V.F.3.	If the LTU will manage incompatible or reactive wastes, as indicated in Table V.F.1, include the requirements of 264.17 & 264.282 in the engineering report	264.282				Please provide an answer in the Submitted column!
605	V.F.4.	If LTU will manage FO20, FO21, FO22, FO23, FO26, & FO27, as indicated in Table V.F.1, include the requirements of 264.283 in the engineering report	264.283				Please provide an answer in the Submitted column!
606	V.F.5.	Describe the LTU, including a plan view and cross-section					Please provide an answer in the Submitted column!
607	V.F.6.	Complete and submit Table V. F.3 - Land Treatment Principal Hazardous Constituents in hard copy and editable electronic format					Please provide an answer in the Submitted column!
608	V.F.7.	Describe measures of Run-on diversion control:	335.171(3)				Please provide an answer in the Submitted column!

609	V.F.7.*a.*	System collects and controls run-off volume resulting from 100-yr, 24-hr storm	335.171(3)				Please provide an answer in the Submitted column!
610	V.F.7.*b.*	Collection and holding facilities managed expeditiously after storm	335.171(5)				Please provide an answer in the Submitted column!
611	V.F.8.	Describe measures of Run-off controls:	335.171(4)				Please provide an answer in the Submitted column!
612	V.F.8.*a.*	System collects and controls run-off volume resulting from 100-yr, 24-hr storm	335.171(4)				Please provide an answer in the Submitted column!
613	V.F.8.*b.*	Collection and holding facilities managed expeditiously after storm; and	335.171(5)				Please provide an answer in the Submitted column!
614	V.F.8.*c.*	Run-off volume calculations should be included					Please provide an answer in the Submitted column!
615	V.F.9.	Describe practices of wind dispersal system controls	335.171(6)				Please provide an answer in the Submitted column!
616	V.F.10.	Provide treatment demonstration, including:	264.272				Please provide an answer in the Submitted column!
617	V.F.10.*a.*	A description of plans to conduct treatment demonstration as requirement in 264.272	270.20(a)				Please provide an answer in the Submitted column!
618	V.F.10.*b.*	List of wastes	270.20(a)(1)				Please provide an answer in the Submitted column!
619	V.F.10.*c.*	Characteristics of waste and presence of appendix VIII of 261 constituents	264.272(c)(1)(i)				Please provide an answer in the Submitted column!
620	V.F.10.*d.*	Climate of the area	264.272(c)(1)(ii)				Please provide an answer in the Submitted column!
621	V.F.10.*e.*	Topography of the area	264.272(c)(1)(iii)				Please provide an answer in the Submitted column!
622	V.F.10.*f.*	Characteristics of the soil in the area	264.272(c)(1)(iv)				Please provide an answer in the Submitted column!
623	V.F.10.*g.*	Data sources to be used to make the demonstration	270.20(a)(2)				Please provide an answer in the Submitted column!
624	V.F.10.*h.*	Laboratory or field test that will be conducted, including:	270.20(a)(3)				Please provide an answer in the Submitted column!
625	V.F.10.*h.1.*	Type of test	270.20(a)(3)(i)				Please provide an answer in the Submitted column!
626	V.F.10.*h.2.*	Materials, methods, and analytical procedures	270.20(a)(3)(ii)				Please provide an answer in the Submitted column!
627	V.F.10.*h.3.*	Expected time for completion	270.20(a)(3)(iii)				Please provide an answer in the Submitted column!
628	V.F.10.*h.4.*	Volume and characteristics of the unit to be simulated, including treatment zone, climatic conditions, and operating practices	270.20(a)(3)(iv)				Please provide an answer in the Submitted column!
629	V.F.10.*h.5.*	A description of land treatment program as required under 264.271 that includes: the list of wastes; design and operating procedures; waste application rates and methods; control of pH; microbial enhancement/chemical reactions; and moisture control	270.20(b)				Please provide an answer in the Submitted column!
630	V.F.10.*i.*	Duration of the test	264.272(c)(3)(iii)				Please provide an answer in the Submitted column!
631	V.F.10.*j.*	Conducted in a manner that protects health & environment	264.272(c)(3)				Please provide an answer in the Submitted column!
632	V.F.10.*k.*	Operating practices that will be used at the LTU	264.272(c)(1)(v)				Please provide an answer in the Submitted column!
633	V.F.11.	Provide unsaturated zone monitoring program addressing:	264.278				Please provide an answer in the Submitted column!
634	V.F.11.*a.*	Soil-pore liquid monitoring, which should include:	264.278(a)				Please provide an answer in the Submitted column!
635	V.F.11.*a.1.*	Hazardous constituents, which require approval by the regional administrator	264.278(a)(1)				Please provide an answer in the Submitted column!
636	V.F.11.*a.2.*	Justification of principle hazardous constituents, which require approval by the regional administrator	264.278(a)(2)				Please provide an answer in the Submitted column!
637	V.F.11.*b.*	Sampling location	264.278(b)				Please provide an answer in the Submitted column!
638	V.F.11.*c.*	Background values	264.278(c)				Please provide an answer in the Submitted column!
639	V.F.11.*d.*	Sampling frequency for soil and soil-pore liquid monitoring	264.278(d)				Please provide an answer in the Submitted column!
640	V.F.11.*e.*	Sampling and analysis procedures:	264.278(e)				Please provide an answer in the Submitted column!
641	V.F.11.*e.1.*	Sample collection	264.278(e)(1)				Please provide an answer in the Submitted column!
642	V.F.11.*e.2.*	Sample preservation and shipment	264.278(e)(2)				Please provide an answer in the Submitted column!
643	V.F.11.*e.3.*	Analytical procedures	264.278(e)(3)				Please provide an answer in the Submitted column!
644	V.F.11.*e.4.*	Chain of custody	264.278(e)(4)				Please provide an answer in the Submitted column!
645	V.F.11.*f.*	Statistical methods	264.278(f-g)				Please provide an answer in the Submitted column!
646	V.F.12.	Demonstrate conditions met for food chain crop:	264.276				Please provide an answer in the Submitted column!
647	V.F.12.*a.*	Crops for human consumption	264.276(a)(1)				Please provide an answer in the Submitted column!
648	V.F.12.*b.*	Food chain crops demonstration	264.276(a)(1)				Please provide an answer in the Submitted column!
649	V.F.12.*c.*	Demonstration basis	264.276(a)(2)				Please provide an answer in the Submitted column!
650	V.F.12.*d.*	Test procedures	264.276(a)(3-4)				Please provide an answer in the Submitted column!
651	V.F.12.*e.*	Cadmium bearing wastes	264.276(b)				Please provide an answer in the Submitted column!
652	V.F.12.*f.*	Animal feed	264.276(b)(2)				Please provide an answer in the Submitted column!
653	V.F.13.	Provide detailed plans and specifications individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	305.50(a)(7)				Please provide an answer in the Submitted column!
656	V.G.~.*a.*	For new landfill only: The costs associated with above-grade construction and potential adverse effect associated with above-grade construction	305.50(a)(5)				Please provide an answer in the Submitted column!

657	V.G.~.*b.*	For a new landfill only: Located in recharge zone must include a hydrogeologic report prepared by a licensed professional geoscientist or PE along with the Registered Engineering Firm's name and Registration Number	305.50(a)(6)				Please provide an answer in the Submitted column!
658	V.G.~.*c.*	Test fill	264.19(c)(2)				Please provide an answer in the Submitted column!
659	V.G.~.*d.*	Calculation of action leakage rate	264.302				Please provide an answer in the Submitted column!
660	V.G.~.*e.*	Monitoring and inspection during construction or installation	264.303(a)				Please provide an answer in the Submitted column!
661	V.G.~.*f.*	Response action plan	264.304(a)				Please provide an answer in the Submitted column!
662	V.G.~.*g.*	Surveying and recordkeeping	264.309				Please provide an answer in the Submitted column!
664	V.G.2.	If a landfill will manage ignitable or reactive wastes, as indicated in Table V.G.1, include the requirements of 264.17 & 264.312 in the engineering report	264.312				Please provide an answer in the Submitted column!
665	V.G.3.	If a landfill will manage incompatible wastes, as indicated in Table V.G.1, include the requirements of 264.17 and 264.313 in the engineering report	264.313				Please provide an answer in the Submitted column!
666	V.G.4.	If a landfill will manage FO20, FO21, FO22, FO23, FO26, & FO27, as indicated in Table V.F.1, include the requirements of 264.317 in the engineering report	264.317				Please provide an answer in the Submitted column!
667	V.G.5.	Describe the landfill, including a plan view and cross-section					Please provide an answer in the Submitted column!
668	V.G.6.	Describe containment system:	TCEQ Tech Guideline #6; EPA Publications 530-SW-85-014, 625/4-89-022, and SW-869				Please provide an answer in the Submitted column!
670	V.G.6.b.	Describe the liners and leachate collection system:					Please provide an answer in the Submitted column!
671	V.G.6.b.~.*a.*	Analysis for artificial liners:	EPA Publications 530-SW-85-014, 625/4-89-022, and SW-869				Please provide an answer in the Submitted column!
672	V.G.6.b.1.	Seaming method					Please provide an answer in the Submitted column!
673	V.G.6.b.2.	Surface preparation method					Please provide an answer in the Submitted column!
674	V.G.6.b.3.	Tensile strength					Please provide an answer in the Submitted column!
675	V.G.6.b.4.	Impact resistance					Please provide an answer in the Submitted column!
676	V.G.6.b.5.	Compatibility demonstration					Please provide an answer in the Submitted column!
677	V.G.6.b.6.	Foundation design					Please provide an answer in the Submitted column!
678	V.G.6.b.~.*b.*	Analysis for soil liners:	EPA Publications 530-SW-85-014, 625/4-89-022, and SW-869				Please provide an answer in the Submitted column!
679	V.G.6.b.7.	Waste migration analysis					Please provide an answer in the Submitted column!
680	V.G.6.b.8.	Atterberg limits, % passing a # 200 sieve, permeability					Please provide an answer in the Submitted column!
681	V.G.6.b.9.	Moisture content					Please provide an answer in the Submitted column!
682	V.G.6.b.10.	Standard proctor density, compaction data					Please provide an answer in the Submitted column!
683	V.G.6.b.~.*c.*	Analysis for leachate collection system:					Please provide an answer in the Submitted column!
684	V.G.6.b.11.	Capacity of the system - Address:					Please provide an answer in the Submitted column!
685	V.G.6.b.11.a.	Rate of leachate removal					Please provide an answer in the Submitted column!
686	V.G.6.b.11.b.	Capacity of sumps					Please provide an answer in the Submitted column!
687	V.G.6.b.11.c.	Thickness of mounding and maximum hydraulic					Please provide an answer in the Submitted column!
688	V.G.6.b.12.	Pipe material strength					Please provide an answer in the Submitted column!
689	V.G.6.b.13.	Pipe network spacing and grading					Please provide an answer in the Submitted column!
690	V.G.6.b.14.	Collection sump material and strength					Please provide an answer in the Submitted column!
691	V.G.6.b.15.	Drainage media specifications and performance					Please provide an answer in the Submitted column!
692	V.G.6.b.16.	Analysis showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe					Please provide an answer in the Submitted column!
693	V.G.6.b.17.	Compatibility demonstration					Please provide an answer in the Submitted column!
694	V.G.6.c.	If liner system and leachate collection components are chemically resistant to wastes, submit tests and documentation					Please provide an answer in the Submitted column!
695	V.G.6.d.	Provide QA/QC plan					Please provide an answer in the Submitted column!
696	V.G.6.e.	Whether the leachate collection components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report					Please provide an answer in the Submitted column!

697	V.G.6.f.	Provide a Response Action Plan that proposes actions to be taken in the case of exceedance of the landfill Action Leakage Rate. At a minimum, the Response Action Plan must include the requirements of 40 CFR 264.304	264.304				Please provide an answer in the Submitted column!
698	V.G.7.	Provide for Dikes:	EPA Publications 625/4-89-022 and SW-869				Please provide an answer in the Submitted column!
699	V.G.7.a.	Slope stability analysis					Please provide an answer in the Submitted column!
700	V.G.7.b.	Hydrostatic and hydrodynamic analyses					Please provide an answer in the Submitted column!
701	V.G.7.c.	Ability to withstand scouring from leaky liner, etc.					Please provide an answer in the Submitted column!
702	V.G.8.	For newly regulated units, lateral expansions or replacement of existing units must meet minimum technological requirements (MTR). MTR must address:	335.173; 264.301				Please provide an answer in the Submitted column!
703	V.G.8.*a.*	Top liner migration prevention	264.301(c)(1)(i)(A)				Please provide an answer in the Submitted column!
704	V.G.8.*b.*	Composite bottom liner migration prevention	264.301(c)(1)(i)(B)				Please provide an answer in the Submitted column!
705	V.G.8.*c.*	Leachate collection and removal systems above and between liners	264.301(c)(2)				Please provide an answer in the Submitted column!
706	V.G.8.*d.*	Leachate collection and removal systems between liners and immediately above the bottom composite liner	264.301(c)(3)				Please provide an answer in the Submitted column!
707	V.G.8.*e.*	Removal of pumpable liquids	264.301(c)(4)				Please provide an answer in the Submitted column!
708	V.G.8.*f.*	Liner system location relative to high water table	264.301(c)(5)				Please provide an answer in the Submitted column!
709	V.G.8.*g.*	Design and operating requirements for new and existing liner systems:	335.173; 264.301				Please provide an answer in the Submitted column!
710	V.G.8.*g.1.*	Liner must be constructed of materials that prevent wastes passing into the liner during the active life of the facility	335.173(a)(1)				Please provide an answer in the Submitted column!
711	V.G.8.*g.2.*	Materials have appropriate chemical properties and sufficient strength and thickness to prevent failure due to:	335.173(a)(1)(A)				Please provide an answer in the Submitted column!
712	V.G.8.*g.2.a.*	Pressure gradients (including static head and external hydrogeologic forces)	335.173(a)(1)(A)				Please provide an answer in the Submitted column!
713	V.G.8.*g.2.b.*	Physical contact with waste or leachate	335.173(a)(1)(A)				Please provide an answer in the Submitted column!
714	V.G.8.*g.2.c.*	Climate conditions	335.173(a)(1)(A)				Please provide an answer in the Submitted column!
715	V.G.8.*g.2.d.*	Stress of installation and daily operation	335.173(a)(1)(A)				Please provide an answer in the Submitted column!
716	V.G.8.*g.3.a.*	Liner system foundation	335.173(a)(1)(B)				Please provide an answer in the Submitted column!
717	V.G.8.*g.3.b.*	Liner system coverage	335.173(a)(1)(C)				Please provide an answer in the Submitted column!
718	V.G.8.*g.4.a.*	Bottom liner migration prevention	335.173(a)(2)(A)				Please provide an answer in the Submitted column!
719	V.G.8.*g.4.b.*	Minimize rate of migration of wastes out of landfill	335.173(a)(2)(B)				Please provide an answer in the Submitted column!
720	V.G.8.*g.5.a.*	Leachate collection and removal systems above top liner	335.173(a)(3)				Please provide an answer in the Submitted column!
721	V.G.8.*g.5.b.*	Conditions that ensure leachate depth will not exceed 30 cm (1ft.)	335.173(a)(3); 264.301(c)(3)(ii)				Please provide an answer in the Submitted column!
722	V.G.8.*g.5.c.*	Construction of materials that are chemically resistant to waste and leachate	335.173(a)(3)(A)(i)				Please provide an answer in the Submitted column!
723	V.G.8.*g.5.d.*	Materials strength and thickness	335.173(a)(3)(A)(ii)				Please provide an answer in the Submitted column!
724	V.G.8.*g.5.e.*	Design and operation to prevent clogging	335.173(a)(3)(B)				Please provide an answer in the Submitted column!
725	V.G.8.*g.6.*	Liner system exemption requests;	335.173(b)				Please provide an answer in the Submitted column!
726	V.G.8.*g.7.*	Exemption based on existing portion	335.173(d)				Please provide an answer in the Submitted column!
727	V.G.8.*g.8.*	Exemption for monofills	335.173(e); 264.301(e)				Please provide an answer in the Submitted column!
728	V.G.9.	Provide Site Development Plan, including:					Please provide an answer in the Submitted column!
729	V.G.9.*a.*	Method and rate of waste deposition					Please provide an answer in the Submitted column!
730	V.G.9.*b.*	Waste segregation					Please provide an answer in the Submitted column!
731	V.G.9.*c.*	Average and maximum lift size					Please provide an answer in the Submitted column!
732	V.G.9.*d.*	Average and maximum cell and trench size					Please provide an answer in the Submitted column!
733	V.G.10.	Describe Run-on controls, including:					Please provide an answer in the Submitted column!
734	V.G.10.*~.1.*	Design, construction, operation and maintenance of run-on control system	335.173(g); 264.301(g)				Please provide an answer in the Submitted column!
735	V.G.10.*~.2.*	Collection and holding facilities managed expeditiously					Please provide an answer in the Submitted column!
736	V.G.10.a.	Run-on volume and depth calculations resulting from 100-yr, 24-hr storm	335.173(g)				Please provide an answer in the Submitted column!
737	V.G.10.b.	Back-water calculations (for ditches on plant property)					Please provide an answer in the Submitted column!
738	V.G.11.	Describe Run-off Controls, including:					Please provide an answer in the Submitted column!
739	V.G.11.*a.*	Design, construction, operation and maintenance of run-off control system	335.173(h); 264.301(h)				Please provide an answer in the Submitted column!
740	V.G.11.*b.*	System collects and controls run-off volume resulting from 100-yr, 24-hr storm	335.173(h)				Please provide an answer in the Submitted column!
741	V.G.12.	Describe practices of wind dispersal system controls	335.173(j); 264.301(j)				Please provide an answer in the Submitted column!

742	V.G.13.	Liquid wastes: Provide supporting documentation showing that an appropriate stabilization procedures, etc. were used for the following:	264.314				Please provide an answer in the Submitted column!
743	V.G.13.*a*.	Bulk or containerized free liquids	335.175(a-b); 264.314(a-b)				Please provide an answer in the Submitted column!
744	V.G.13.*b*.	Placement of any liquid waste which is not a hazardous waste in a landfill	335.175(c)				Please provide an answer in the Submitted column!
745	V.G.13.*c*.	Containers holding free liquids:	335.173(d)				Please provide an answer in the Submitted column!
746	V.G.13.*c.1.*	Restriction to small containers (e.g. ampule)	335.173(d)(1)				Please provide an answer in the Submitted column!
747	V.G.13.*c.2.*	Non-storage containers(e.g. battery or capacitor)	335.175(d)(2)				Please provide an answer in the Submitted column!
748	V.G.13.*c.3.*	Labpack containers	335.175(d)(3)				Please provide an answer in the Submitted column!
749	V.G.14.	If providing an alternate design or operating practices, demonstrate the following:	335.175(d); 264.301(d)				Please provide an answer in the Submitted column!
750	V.G.14.a.	Will prevent migration of hazardous constituents into the groundwater					Please provide an answer in the Submitted column!
751	V.G.14.b.	Will allow detection of leaks of hazardous constituents through the top liner at least as effectively					Please provide an answer in the Submitted column!
752	V.G.15.	If seeking an exemption from double-liner requirements for monofills, provide the following:	264.301(e)				Please provide an answer in the Submitted column!
753	V.G.15.*a*.	Alternative design and operation	335.173(b)				Please provide an answer in the Submitted column!
754	V.G.15.*b*.	Nature and quantity of wastes	335.173(b)(1)				Please provide an answer in the Submitted column!
755	V.G.15.*c*.	Proposed alternate design and operation	335.173(b)(2)				Please provide an answer in the Submitted column!
756	V.G.15.*d*.	Hydrogeologic setting , including liners and soils	335.173(b)(3)				Please provide an answer in the Submitted column!
757	V.G.15.*e*.	All other factors which would influence the quality and mobility of leachate produced					Please provide an answer in the Submitted column!
758	V.G.16.	Above-grade benefits: Provide benefits, costs, adverse effects associated with above-grade construction	361.108 (TX Health & Safety Code)				Please provide an answer in the Submitted column!
759	V.G.*17*.	Provide detailed plans and specifications individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	305.50(a)(7)				Please provide an answer in the Submitted column!
760	V.H.	Incinerators	305 Subchapter I; 335.152(a)(13); 264 subpart O				
761	V.H.1.	Complete and submit Table V.H.1 - Incinerators in hard copy and editable electronic format	270.19; 270.62				Please provide an answer in the Submitted column!
762	V.H.2.	Complete and submit Table V.H.2 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems in hard copy and editable electronic format					Please provide an answer in the Submitted column!
763	V.H.3.	Complete and submit Table V.H.3 - Maximum Constituent Feed Rates in hard copy and editable electronic format					Please provide an answer in the Submitted column!
764	V.H.4.	Complete and submit Table V.H.4 - Maximum Allowable Emission Rates in hard copy and editable electronic format					Please provide an answer in the Submitted column!
765	V.H.5.	Complete and submit Table V.H.5 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems - Short-Term Operation during shakedown period, trial burn period and period after completion of initial trial burn					Please provide an answer in the Submitted column!
766	V.H.6.	Describe precautions taken for management of reactive and/or incompatible wastes	264.17				Please provide an answer in the Submitted column!
767	V.H.7.	If incinerator manages FO20, FO21, FO22, FO23, FO26, or FO27, the DRE requirement is 99.9999%	264.343(a)(2)				
768	V.H.8.	For trial burn, one or more of Appendix VIII organic compounds present in waste must be designated as POHC. Selection based on concentration in waste feed and degree of difficulty to incinerate. Complete and submit Table V.H.8 - Principal Organic Hazardous Constituents in hard copy and editable electronic format					Please provide an answer in the Submitted column!
769	V.H.9.	Submit QA/QC Plan for sampling, analysis and monitoring for trail burn					Please provide an answer in the Submitted column!
770	V.H.10.	Integration with MACT Standards Minimization of emissions from startup, shutdown, and malfunction events for permitted units, identify the following if applicable:	305.175-176; 270.235				Please provide an answer in the Submitted column!
771	V.H.10.*a*.	Retain relevant permit conditions	270.235(a)(i)				Please provide an answer in the Submitted column!
772	V.H.10.*b*.	Revise relevant permit conditions	270.235(a)(ii)				Please provide an answer in the Submitted column!
773	V.H.10.*c*.	Remove permit conditions with approved plan documentation	270.235(a)(iii)				Please provide an answer in the Submitted column!

774	V.H.*11.*	INCINERATOR TRIAL BURN PLAN:	No Letter = Common D=DILO (Data In Lieu of Testing)				
775	V.H.*11.a.*	TRIAL BURN PLAN REQUIREMENTS: Provide information describing the plans for the test that demonstrates the following requirements:	305.172/305.175 (New); 270.62/305.174/305.175 (Existing)				
776	V.H.*11.a.1.*	Incinerator engineering description:	305.172(2)(B); 270.62(b)(2)(ii); D:270.19(c)(2)				Please provide an answer in the Submitted column!
777	V.H.*11.a.1.a.*	Manufacturer's name and model number of the incinerator	305.172(2)(B)(i); 270.62(b)(2)(ii)(A); D:270.19(c)(2)(i)				Please provide an answer in the Submitted column!
778	V.H.*11.a.1.b.*	Type of incinerator	305.172(2)(B)(ii); 270.62(b)(2)(ii)(B); D:270.19(c)(2)(ii)				Please provide an answer in the Submitted column!
779	V.H.*11.a.1.c.*	Linear dimensions including cross sectional area of combustion chamber	305.172(2)(B)(iii); 270.62(b)(2)(ii)(C); D:270.19(c)(2)(iii)				Please provide an answer in the Submitted column!
780	V.H.*11.a.1.d.*	Description of auxiliary fuel supply, type/feed, max and typical rate, and heat value	305.172(2)(B)(iv); 270.62(b)(2)(ii)(D); D:270.19(c)(2)(iv)				Please provide an answer in the Submitted column!
781	V.H.*11.a.1.e.*	Capacity of prime combustion air mover(s)	305.172(2)(B)(v); 270.62(b)(2)(ii)(E); D:270.19(c)(2)(v)				Please provide an answer in the Submitted column!
782	V.H.*11.a.1.f.*	Description of automatic waste feed cutoff system, cut off values, instrumentation with instrument range and accuracy	305.172(2)(B)(vi); 270.62(b)(2)(ii)(F); D:270.19(c)(2)(vi)				Please provide an answer in the Submitted column!
783	V.H.*11.a.1.g.*	Stack gas monitoring and pollution control equipment monitoring system with instrument range and accuracy	305.172(2)(B)(vii); 270.62(b)(2)(ii)(G); D:270.19(c)(2)(vii)				Please provide an answer in the Submitted column!
784	V.H.*11.a.1.h.*	Nozzle, injector. and burner design	305.172(2)(B)(viii); 270.62(b)(2)(ii)(H); D:270.19(c)(2)(viii)				Please provide an answer in the Submitted column!
785	V.H.*11.a.1.i.*	Construction material	305.172(2)(B)(ix); 270.62(b)(2)(ii)(I); D:270.19(c)(2)(ix)				Please provide an answer in the Submitted column!
786	V.H.*11.a.1.j.*	Location and description of temperature, pressure, and flow indicating and control devices with instrument range and accuracy	305.172(2)(B)(x); 270.62(b)(2)(ii)(J); D:270.19(c)(2)(x)				Please provide an answer in the Submitted column!
787	V.H.*11.a.1.k.*	Emergency shutdown procedures	305.172(2)(B)(vi) and (2)(G); 270.62(b)(2)(vii)				Please provide an answer in the Submitted column!
788	V.H.*11.a.2.*	Description of air pollution control equipment operation and control	305.172(2)(F); 270.62(b)(7)(vi)				Please provide an answer in the Submitted column!
789	V.H.*11.a.3.*	Identification of fugitive emission source, location, emission rate, and their means of control 40 CFR 264.345(d)	305.172(2)(H) and 305.172(7)(G); 270.62(b)(2)(viii) and 270.62(b)(7)(vii); D:270.19(c)(7)				Please provide an answer in the Submitted column!
790	V.H.*11.a.4.*	Analysis of each waste or mixture of wastes:	305.172(2)(A); 270.62(b)(2)(i); D:270.19(c)(1)				Please provide an answer in the Submitted column!
791	V.H.*11.a.4.a.*	Waste heat value	305.172(2)(A)(i); 270.62(b)(2)(i)(A); 270.19(c)(1)(i)				Please provide an answer in the Submitted column!
792	V.H.*11.a.4.b.*	Levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, thallium, all metals routinely detected by EPA Method used, total chlorine/chloride, and ash	305.172(2)(H); 270.62(b)(2)(viii); D:270.19(c)(7)				Please provide an answer in the Submitted column!

793	V.H.*11.a.4.c.*	Viscosity (if applicable) or description of physical form of waste feed stream	305.172(2)(A)(ii); 270.62(b)(2)(i)(B); D:270.19(c)(1)(ii)				Please provide an answer in the Submitted column!
794	V.H.*11.a.4.d.*	Identification of any hazardous constituents listed in Part261 appendix VIII	305.172(2)(A)(iii); 270.62(b)(2)(i)(C); D:270.19(c)(1)(iii)				Please provide an answer in the Submitted column!
795	V.H.*11.a.4.e.*	Approximate quantification of all hazardous constituents	305.172(2)(A)(iv); 270.62(b)(2)(i)(D); D:270.19(c)(1)(iv)				Please provide an answer in the Submitted column!
796	V.H.*11.a.4.f.*	POHC selection	305.172(4); 270.62(b)(4); D:270.19(c)(1)(v)				Please provide an answer in the Submitted column!
797	V.H.*11.a.5.*	Sampling analysis, and monitoring procedures, locations, equipment description, frequency, and procedures	305.172(2)C); 270.62(b)(2)(iii); D:270.19(c)(2)(x)				Please provide an answer in the Submitted column!
798	V.H.*11.a.6.*	Detailed trial burn schedule including dates, duration, quantity of waste to be burned, and other factors	305.172(2)(D); 270.62(b)(2)(iv)				Please provide an answer in the Submitted column!
799	V.H.*11.a.7.*	Detailed test protocol table with column for each test condition containing detailed test conditions for each waste stream, operating temperatures, each waste feed rate, combustion gas velocity, use of auxiliary fuel, and other relevant parameter. Historical justification of Trial Burn test conditions	305.172(2)(E); 270.62(b)(2)(v)				Please provide an answer in the Submitted column!
800	V.H.*11.a.8.*	Other Information including, but not limited to, Engineering Drawings including incinerator, air pollution control devices, sampling protocols and access, PFD, PI&D, elevations and plan views, piping, containment, vessels, specifications, and calculations appropriately sealed	305.172(2)(H); 270.62(b)(2)(viii); D:270.19(c)(7)				Please provide an answer in the Submitted column!
801	V.H.*11.b.*	TYPICAL AND MAXIMUM FLOW RATE OF EACH WASTE STREAM	305.172(2)(H); 270.62(b)(2)(viii); D:270.19(c)(7)				Please provide an answer in the Submitted column!
802	V.H.*11.c.*	DATA OBJECTIVES FOR TRIAL BURN:					
803	V.H.*11.c.1.*	Quantitative analysis of POHCs in waste feed to incinerator	305.172(7)(A); 270.62(b)(7)(i); D:270.19(c)(8)				Please provide an answer in the Submitted column!
804	V.H.*11.c.2.*	Quantitative analysis of metals in feed streams, hazardous waste, and other fuels	270.66(f)(1) (by procedure); D:270.19(c)(7)				Please provide an answer in the Submitted column!
805	V.H.*11.c.3.*	Quantitative analysis of exhaust gas for POHCs, O2, & HCl, metals, and chlorine	305.172(7)(B); 270.62(b)(7)(ii); 270.66(f)(4) (by procedure); D:270.19(c)(5)				Please provide an answer in the Submitted column!
806	V.H.*11.c.4.*	Quantitative analysis of scrubber water (if used), ash residue, and other residues for fate of POHCs	305.172(7)(C); 270.62(b)(7)(iii)				Please provide an answer in the Submitted column!
807	V.H.*11.c.5.*	Computation of DRE per 40 CFR 264.343(b)	305.172(7)(D); 270.62(b)(7)(iv); D:270.19(c)(5)				Please provide an answer in the Submitted column!
808	V.H.*11.c.6.*	Computation of HCl removal efficiency per 40 CFR 264.343(b)	305.172(7)(E); 270.62(b)(7)(v); D:270.19(c)(5) and (6)(vii)				Please provide an answer in the Submitted column!
809	V.H.*11.c.7.*	Computation of PM per 40 CFR 264.343('c)	305.172(7)(F); 270.62(b)(7)(vi); D:270.19(c)(5)				Please provide an answer in the Submitted column!
810	V.H.*11.c.8.*	Measurement of average, maximum, and minimum temperatures and combustion gas velocity	305.172(7)(H); 270.62(b)(7)(viii); D:270.19(c)(6)(v) and (c)(5)				Please provide an answer in the Submitted column!
811	V.H.*11.c.9.*	Continuous measurements of CO in exhaust gas	305.172(7)(I); 270.62(b)(7)(ix); D:270.19(c)(5)(ii)				Please provide an answer in the Submitted column!

812	V.H.*11.c.10.*	Other Information	305.172(7)(J); 270.62(b)(7)(x); D:270.19(c)(7)				Please provide an answer in the Submitted column!
813	V.H.*11.d.*	PERFORMANCE STANDARDS:					
814	V.H.*11.d.1.*	Incinerator burning HW must achieve a DRE of 99.99% for each POHC	264.343(a)(1)				Please provide an answer in the Submitted column!
815	V.H.*11.d.2.*	An incinerator burning HW FO20, FO21, FO22, FO23, FO26, or FO27 must achieve a DRE of 99.9999% for each POHC	264.343(a)(2)				Please provide an answer in the Submitted column!
816	V.H.*11.d.3.*	An incinerator burning HW and producing stack emissions of more than 1.8 kg/hr. (4lbs/hr.) of HCl must control HCl emissions if 1.8 kg/hr. or 1% of HCl in the stack gas prior to entering any pollution control equipment	264.343(b)				Please provide an answer in the Submitted column!
817	V.H.*11.d.4.*	An incinerator burning HW must not emit particulate matter in excess of 180 milligrams per dry standard cubic meter(0.08 grains per dry standard cubic foot) when corrected for the amount of 02 in the stack gas	264.343(c)				Please provide an answer in the Submitted column!
818	V.H.*11.e.*	METALS EMISSIONS CONTROLS:	By Guidance/Procedure apply 266.106 and 270.22				
819	V.H.*11.e.1.*	Tier 1 feed rate screening limits for metals are specified in Part 266 Appendix I as a function of TESH, Terrain type and land use - No test required:	266.106(b); 270.22(a)(3)				Please provide an answer in the Submitted column!
820	V.H.*11.e.1.a.*	Noncarcinogenic metals in all feed streams (HW, fuel, and industrial furnace feed stock)	266.106(b)(1); 270.22(a)(3)(i-iii)				Please provide an answer in the Submitted column!
821	V.H.*11.e.1.b.*	Carcinogenic metals in all fee streams HW, fuel, and industrial furnace feed stock	266.106(b)(2)(i-ii); 270.22(a)(3)(i-iii)				Please provide an answer in the Submitted column!
822	V.H.*11.e.1.c.*	Terrain-adjusted effective stack height (TESH)determined	266.106(b)(3)(i-iii); 270.22(a)(3)(iv)				Please provide an answer in the Submitted column!
823	V.H.*11.e.1.d.*	Terrain type- Non-complex or Complex	266.106(b)(4); 270.22(a)(3)(iv)				Please provide an answer in the Submitted column!
824	V.H.*11.e.1.e.*	Land use - urban or rural	266.106(b)(5); 270.22(a)(3)(iv)				Please provide an answer in the Submitted column!
825	V.H.*11.e.1.f.*	Multiple Stacks - all emissions form calculated worst-case stack	266.106(b)(6); 270.22(a)(3)(v)				Please provide an answer in the Submitted column!
826	V.H.*11.e.1.g.*	Eligible for Tier I	266.106(b)(7); 270.22(a)(3)(vi)				Please provide an answer in the Submitted column!
827	V.H.*11.e.1.h.*	Metals feed rate monitoring	266.106(b)(8); 270.22(a)(3)(i-iii) & (vii)				Please provide an answer in the Submitted column!
828	V.H.*11.e.2.*	Tier II emissions rate screening limits for metals are specified in Part 266 Appendix I as a function of: TESH, terrain type, and land use. Test required:	266.106(c); 270.22(a)(1); 270.66				Please provide an answer in the Submitted column!
829	V.H.*11.e.2.a.*	Noncarcinogenic metals	266.106(c)(1)				Please provide an answer in the Submitted column!
830	V.H.*11.e.2.b.*	Carcinogenic metals	266.106(c)(2)				Please provide an answer in the Submitted column!
831	V.H.*11.e.2.c.*	Emissions rate limits must be implemented by limiting feed rates of metals to trial burn levels, total feed rate per 266.102(e)(6)	266.106(c)(3)				Please provide an answer in the Submitted column!
832	V.H.*11.e.2.d.*	Terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and eligibility criteria in 266.106(b) apply	266.106(c)(4)				Please provide an answer in the Submitted column!
833	V.H.*11.e.2.e.*	Multiple stacks - all emissions from calculated worst-case stack	266.106(c)(5)				Please provide an answer in the Submitted column!
834	V.H.*11.e.3.*	Tier III and Adjusted Tier I site-specific risk assessment - Test required:	206.106(d); 270.22(a)(1); 270.66				Please provide an answer in the Submitted column!
835	V.H.*11.e.3.a.*	Metals and controls must be demonstrated by testing using air dispersion modeling to predict the maximum annual average off-site ground level concentration and that acceptable ambient levels are not exceeded	266.106(d)(1)				Please provide an answer in the Submitted column!
836	V.H.*11.e.3.b.*	Acceptable ambient levels listed in Part 266 Appendices IV and V	266.106(d)(2)				Please provide an answer in the Submitted column!
837	V.H.*11.e.3.c.*	Carcinogenic metals - the sum of the ratios of the predicted maximum and annual average off-site ground level concentration to RSDs shall not exceed 1.0	266.106(d)(3)				Please provide an answer in the Submitted column!
838	V.H.*11.e.3.d.*	Noncarcinogenic metals - The predicted maximum annual average off-site ground level concentration or each metal shall not exceed the RAC	266.106(d)(4)				Please provide an answer in the Submitted column!
839	V.H.*11.e.3.e.*	Multiple stacks- Must perform emissions testing and dispersion modeling to demonstrate aggregate emissions from all stacks do not exceed acceptable ambient levels	266.106(d)(5)				Please provide an answer in the Submitted column!
840	V.H.*11.e.3.f.*	Feed rate limits set to levels during trial burn or compliance testing	266.106(d)(6)				Please provide an answer in the Submitted column!

841	V.H.*11.e.4.*	Adjusted Tier 1 feed rate screening limits - Determined using Part 266 Appendix 1 screening limit and site-specific dispersion modeling. No test required	266.106(e); 270.22(a)(3)				Please provide an answer in the Submitted column!
842	V.H.*11.e.5.*	Alternative Tier II or III implementation approaches	266.106(f); 270.22(c)				Please provide an answer in the Submitted column!
843	V.H.*11.e.6.*	Emission testing for metals shall be conducted using the Multiple Metals Train as described in Part 266 Appendix IX:	266.106(g)				Please provide an answer in the Submitted column!
844	V.H.*11.e.6.a.*	Metal testing shall be conducted using Method 0060	266.106(g)(1)				Please provide an answer in the Submitted column!
845	V.H.*11.e.6.b.*	Hexavalent Chromium – Chromium Emissions are assumed to be hexavalent chromium unless emission testing is conducted using Method 0061	266.106(g)(2)				Please provide an answer in the Submitted column!
846	V.H.*11.e.7.*	Dispersion modeling methods required under this section	266.106(h)				Please provide an answer in the Submitted column!
847	V.H.*11.f.*	HCl & Cl2 EMISSIONS STANDARDS:	By Guidance/Procedure apply 266.107 and 270.22				
848	V.H.*11.f.1.*	Tier 1 feed rate screening limits - Feed rate screening limits specified in Part 266 Appendix II as a function of TESH, Terrain type, and land use - Analysis required: Feed rate of total chlorine and chloride, organic and inorganic, in HW, fuels and industrial furnace feed stocks	266.107(b)(1); 270.22(a)(5); D:270.22(a)(6)				Please provide an answer in the Submitted column!
849	V.H.*11.f.2.*	Tier II emissions rate screening limits - Emission rate screening limits specified in Part 266, Appendix III as a function of TESH, Terrain type, and land use - emission test required	266.107(b)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
850	V.H.*11.f.3.*	Terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and eligibility criteria in 266.106(b) apply	266.107(b)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
851	V.H.*11.f.4.*	Multiple stacks - If more than one on-site stack from a BIF, the incinerator or other treatment unit is subject to control HCl and Cl2 under RCRA permit or interim status and must comply with Tier I and II screening limits	266.107(b)(4); D:270.22(a)(6)				Please provide an answer in the Submitted column!
852	V.H.*11.f.5.*	Tier III Site - Specific Risk Assessments - Emissions test required:	266.107(c)				Please provide an answer in the Submitted column!
853	V.H.*11.f.5.a.*	Emission rate for HCl and Cl2 - demonstrated by using air dispersion modeling to predict the maximum annual average off-site ground level concentration for HCl and Cl2 and demonstrate that acceptable ambient levels are not exceeded	266.107(c)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
854	V.H.*11.f.5.b.*	Acceptable ambient levels are listed in Part 266 Appendix IV for HCl and Cl2	266.106(c)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
855	V.H.*11.f.5.c.*	MULTIPLE STACKS - must demonstrate that aggregate emissions for all on-site stacks do not exceed acceptable ambient levels	266.107(c)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
856	V.H.*11.f.6.*	Averaging periods defined in 266.102(e)(6)	266.107(d); D:270.22(a)(6)				Please provide an answer in the Submitted column!
857	V.H.*11.f.7.*	Adjusted Tier 1 feed rate screening limits - No test required	266.107(e); D:270.22(a)(6)				Please provide an answer in the Submitted column!
858	V.H.*11.f.8.*	Emission testing - HCl and Cl2 sampling shall be conducted using the procedures described in Methods 0050 or 0051	266.107(f); D:270.22(a)(6)				Please provide an answer in the Submitted column!
859	V.H.*11.f.9.*	Dispersion modeling per 40 CFR 266.106(h)	266.107(g)				Please provide an answer in the Submitted column!
860	V.H.*11.g.*	QA/QC PLAN	Guidance				Please provide an answer in the Submitted column!
861	V.H.*11.h.*	PROVIDE INFORMATION REGARDING ADDITIONAL DATA REQUIRED FOR DATA IN LIEU OF TESTING (DILO):	270.19(c)				Please provide an answer in the Submitted column!
862	V.H.*11.h.1.*	Waste Description and analysis comparisons	270.19(c)(4)				Please provide an answer in the Submitted column!
863	V.H.*11.h.2.*	Incinerator and pollution control design and operation condition comparison including firebox, burners/injectors, incinerator, air pollution control device and operation, and sampling port and process measurement locations	270.19(c)(4)				Please provide an answer in the Submitted column!
864	V.H.*11.h.3.*	Previous trial burn results:	270.19(c)(5)				Please provide an answer in the Submitted column!
865	V.H.*11.h.3.a.*	Sampling and analysis methods	270.19(c)(5)(i)				Please provide an answer in the Submitted column!
866	V.H.*11.h.3.b.*	Methods and results of monitoring	270.19(c)(5)(ii)				Please provide an answer in the Submitted column!
867	V.H.*11.h.4.*	Expected incinerator operation comparison	270.19(c)(6)				Please provide an answer in the Submitted column!
868	V.H.*11.h.5.*	Data from comparable facility or unit and Supplemental Information	270.19(c)(7)				Please provide an answer in the Submitted column!
869	V.H.*11.h.*	Provide QA/QC information for data validation, including chromatograms, Chain of Custody, sample preservation records, laboratory notes, etc.	305.172(7)(J); EPA Publication SW-846; D:270.19(c)(7)				Please provide an answer in the Submitted column!

870	V.H.*11.h.*	Other Information for comparison including, but not limited to engineering drawings for incinerator, air pollution control devices, sampling ports and access, PI&D, elevations, and plan views, all sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	305.172(7)(J); D:270.19(c)(7)				Please provide an answer in the Submitted column!
871	V.I.	Boilers and Industrial Furnaces	335.221-225; 266 subpart H				
872	V.I.1.	Complete and submit Table V.I.1 - Boilers and Industrial Furnaces in hard copy and editable electronic format	270.22; 270.66				Please provide an answer in the Submitted column!
873	V.I.2.	Complete and submit Table V.I.2 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Feed Cutoff Systems in hard copy and editable electronic format					Please provide an answer in the Submitted column!
874	V.I.3.	Complete and submit Table V.I.3 - Maximum Constituent Feed Rates in hard copy and editable electronic format					Please provide an answer in the Submitted column!
875	V.I.4.	Complete and submit Table V.I.4 - Maximum Allowable Emission Rates in hard copy and editable electronic format					Please provide an answer in the Submitted column!
876	V.I.5.	Complete and submit Table V.I.5 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems - Short-Term Operation during shakedown period, trial burn period, and period after completion of the initial trial burn					Please provide an answer in the Submitted column!
877	V.I.6.	Describe procedures to manage reactive and/or incompatible wastes	264.17				Please provide an answer in the Submitted column!
878	V.I.7.	For FO20, FO21, FO22, FO23, FO26, and/or FO27 wastes the DRE is 99.9999%	266.104(a)(3)				
879	V.I.8.	For trial burn, one or more of Appendix VIII organic compounds present in waste must be designated as POHC. Selection based on concentration in waste feed and degree of difficulty to incinerate. Complete and submit Table V.I.8 - Principal Organic Hazardous Constituents	266.104(a)(2)				Please provide an answer in the Submitted column!
880	V.I.9.	Submit QA/QC plan for all sampling, analysis, and monitoring activities for trial burn	Guidance				Please provide an answer in the Submitted column!
881	V.I.10.	As applicable, information for facilities requesting addressing of permit conditions deferred to HWC MACT compliance	270.235(1)(a)(i)-(iii); 305.572(a)(6)				Please provide an answer in the Submitted column!
882	V.I.*11.*	B/IF TB/RB CHECKLIST:	No Letter = Common D = DILO (Data In Lieu of Testing)				
883	V.I.*11.a.*	TRIAL BURN PLAN REQUIREMENTS: Provide information describing the plans for the test that demonstrates the following requirements:					
884	V.I.*11.a.1.*	Provide detailed engineering description of BIF:	270.66(c)(3); D.270.22(a)(6)				Please provide an answer in the Submitted column!
885	V.I.*11.a.1.a.*	Manufacturer's name and model number or the boiler or industrial furnace	270.66(c)(3)(i); D:270.22(a)(6)				Please provide an answer in the Submitted column!
886	V.I.*11.a.1.b.*	Type of boiler or industrial furnace	270.66(c)(3)(ii) D:270.22(a)(6)				Please provide an answer in the Submitted column!
887	V.I.*11.a.1.c.*	Maximum design capacity in appropriate units	270.66(c)(3)(iii); D:270.22(a)(6)				Please provide an answer in the Submitted column!
888	V.I.*11.a.1.d.*	Description of hazardous waste feed system, and other fuels and feed stocks, nozzle, and injector	270.66(c)(3)(iv); D:270.22(a)(6)				Please provide an answer in the Submitted column!
889	V.I.*11.a.1.e.*	Capacity of hazardous waste feed system	270.66(c)(3)(v) D:270.22(a)(6)				Please provide an answer in the Submitted column!
890	V.I.*11.a.1.f.*	Typical and maximum flow rate of each waste stream	270.66(c)(9); D:270.22(a)(6)				Please provide an answer in the Submitted column!
891	V.I.*11.a.1.g.*	Description of automatic waste feed cutoff system, cut off values, instrumentation with instrument range and accuracy	270.66(c)(3)(vi); D:270.22(a)(6)				Please provide an answer in the Submitted column!
892	V.I.*11.a.1.h.*	Description of any air pollution control system	270.66(c)(3)(vii); D:270.22(a)(6)				Please provide an answer in the Submitted column!
893	V.I.*11.a.1.i.*	Description of stack gas monitoring and pollution control monitoring systems with instrument range and accuracy	270.66(c)(3)(viii); D:270.22(a)(6)				Please provide an answer in the Submitted column!
894	V.I.*11.a.1.j.*	Emergency shutdown procedures	270.66(c)(3)(vi); 270.66(c)(8); D:270.22(a)(6)				Please provide an answer in the Submitted column!

895	V.I.*11.a.2.*	Description of air pollution control equipment operation and control, and planned operation conditions	270.66(c)(7); D:270.22(a)(6)				Please provide an answer in the Submitted column!
896	V.I.*11.a.3.*	Identification of fugitive emission source, location, and their means of control	270.66(f)(6); D:270.22(a)(6)				Please provide an answer in the Submitted column!
897	V.I.*11.a.4.*	Analysis of all and each feed stream including HW, other fuels, feed stocks:	270.66(c)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
898	V.I.*11.a.4.a.*	Heat value, levels of antimony, barium, beryllium, cadmium, chromium, lead mercury, silver, thallium, all metals routinely detected*by EPA Methods used, total chlorine/chloride, and ash	270.66(c)(1)(i); D:270.22(a)(6)				Please provide an answer in the Submitted column!
899	V.I.*11.a.4.b.*	Viscosity (if liquid) or description of physical form of feed stream	270.66(c)(1)(ii); D:270.22(a)(6)				Please provide an answer in the Submitted column!
900	V.I.*11.a.5.*	Analysis each HW as fired:	270.66(c)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
901	V.I.*11.a.5.a.*	Identification of any hazardous constituents listed in Appendix VIII, Part 261	270.66(c)(2)(i); D:270.22(a)(6)				Please provide an answer in the Submitted column!
902	V.I.*11.a.5.b.*	Approximate quantification of hazardous constituents identified, SW-846	270.66(c)(2)(ii); D:270.22(a)(6)				Please provide an answer in the Submitted column!
903	V.I.*11.a.5.c.*	Description of blending procedures, analysis of blending materials, ratios (if applicable)	270.66(c)(2)(iii); D:270.22(a)(6)				Please provide an answer in the Submitted column!
904	V.I.*11.a.6.*	POHC selection	270.66(e); D:270.22(a)(6)				Please provide an answer in the Submitted column!
905	V.I.*11.a.7.*	Detailed description of sampling and monitoring procedures including locations, frequency, and planned analytical procedures	270.66(c)(4); D:270.22(a)(6)				Please provide an answer in the Submitted column!
906	V.I.*11.a.8.*	Detailed test schedule including dates, durations, quantity of waste to be burned, and other factors:	270.66(c)(5)				Please provide an answer in the Submitted column!
907	V.I.*11.a.8.a.*	Table with column for each test condition containing detailed test conditions for each waste stream, operating temperatures, waste feed rate, combustion gas velocity and flow rate, use of auxiliary feed, hazardous waste feed rates, other fuel feed rates, planned operating conditions for emission control equipment, other relevant parameters, justification for test condition including historical justification, if any	270.66(c)(6)				Please provide an answer in the Submitted column!
908	V.I.*11.a.9.*	Other information including, but not limited to, Engineering Drawings including boiler, combustion chamber, air pollution control devices, sampling ports and access, PFD, PI&D, elevations and plan views, instrument/control measurement locations, piping containment, vessels, specifications, and calculations, all sealed as appropriate	270.66(c)(9)				Please provide an answer in the Submitted column!
909	V.I.*11.b.*	DATA OBJECTIVES FOR TRIAL BURN:					
910	V.I.*11.b.1.*	Quantitative analysis of metals in feed streams, HW, and other fuels	270.66(f)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
911	V.I.*11.b.2.*	DRE trial burn:	270.66(f)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
912	V.I.*11.b.2.a.*	Quantitative analysis of POHCs in waste feed to incinerator	270.66(f)(2)(i); D:270.22(a)(6)				Please provide an answer in the Submitted column!
913	V.I.*11.b.2.b.*	Quantitative analysis of exhaust gas for POHCs, O2, HCl	270.66(f)(2)(iii); D:270.22(a)(6)				Please provide an answer in the Submitted column!
914	V.I.*11.b.2.c.*	Computation of DRE per 40 CFR 264.343(a)	270.66(f)(2)(iii)				Please provide an answer in the Submitted column!
915	V.I.*11.b.3.*	For trial burn for chlorinated dioxins and furans - stack gas analysis for CDDs/CDFs, if applicable	270.66(f)(3)				Please provide an answer in the Submitted column!
916	V.I.*11.b.4.*	For trial burn for particulate matter, metals, or HCl/C12, must provide stack gas analysis for PM, metals, or HCl/Cl2, and computations	270.66(f)(4); D:270.22(a)(6)				Please provide an answer in the Submitted column!
917	V.I.*11.b.5.*	For trial burn for DRE, metals or HCl/Cl2, must provide analysis of scrubber water (if any), ash, other residues for POHCs, metals, and HCl/Cl2, and computations	270.66(f)(5); D:270.22(a)(6)				Please provide an answer in the Submitted column!
918	V.I.*11.b.6.*	Continuous measurements of CO, O2, HC in stack gas	270.66(f)(7); D:270.22(a)(6)				Please provide an answer in the Submitted column!
919	V.I.*11.b.7.*	Permit standards for burners-emission standards	266.102(c); D:270.22(a)(6)				Please provide an answer in the Submitted column!
920	V.I.*11.c.*	STANDARDS TO CONTROL ORGANIC EMISSIONS:	266.104; D:270.22(a)(6)				
921	V.I.*11.c.1.*	DRE standard of 99.99% for all HW constituents in the waste feed	266.104(a)(1); D:270.22(a)(6)(i)(A)				Please provide an answer in the Submitted column!

922	V.I.*11.c.2.*	Designation of POHCs - those compounds in compliance with the DRE requirements in a trial burn in conformance with procedures prescribed in 270.66	270.66(a)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
923	V.I.*11.c.3.*	Dioxin listed waste-must achieve DRE of 99.999% for each POHCs as stated above	270.66(a)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
924	V.I.*11.d.*	SPECIAL PROVISIONS FOR BOILERS:					
925	V.I.*11.d.1.*	Automatic waiver or DRE trial burn for Boilers that operate complaint with 266.110 that do not burn HW containing (or derived from) EPA hazardous waste FO20, FO21, FO22, FO23, FO26, FO27, are considered to be in conformance with DRE standard are exempt from DRE Trial Burn	266.104(a)(4)				Please provide an answer in the Submitted column!
926	V.I.*11.d.2.*	Low risk waste exemption for DRE operation in Compliance with 266.109(a) is considered to be in compliance with 266.104(a)(1) and are exempt from DRE Trial Burn	266.104(a)(5)				Please provide an answer in the Submitted column!
927	V.I.*11.e.*	CARBON MONOXIDE STANDARDS:					
928	V.I.*11.e.1.*	Stack gas cannot exceed 100 ppmv on an hourly rolling average, corrected for 7% oxygen, dry basis	266.104(b)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
929	V.I.*11.e.2.*	Co and oxygen shall be continuously monitored in conference with part 266 Appendix IX	266.104(b)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
930	V.I.*11.e.3.*	Compliance with 100ppmv must be continuously monitored and demonstrated during trial burn	266.104(b)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
931	V.I.*11.f.*	ALTERNATE CARBON MONOXIDE STANDARD:	266.104(c)				
932	V.I.*11.f.1.*	Stack gas CO may exceed 100ppmv provided stack gas HC do not exceed 20 ppmv except as provided by 266.104(f)	266.104(c)(1)				Please provide an answer in the Submitted column!
933	V.I.*11.f.2.*	HC must be established on hourly rolling hourly average, and reported as propane, continuously corrected to 7% O2, dry basis	266.104(c)(2)				Please provide an answer in the Submitted column!
934	V.I.*11.f.3.*	HC shall be continuously monitored	266.104(c)(3)				Please provide an answer in the Submitted column!
935	V.I.*11.f.4.*	Procedure for alternative CO standard has to be established during trail burn	266.104(c)(4)				Please provide an answer in the Submitted column!
936	V.I.*11.g.*	SPECIAL REQUIREMENTS FOR FURNACES WHICH FEED WASTE SOLELY AS AN INGREDIENT AT LOCATIONS OTHER THAN THE “HOT” END MUST MEET HC LIMIT	266.104(d)				Please provide an answer in the Submitted column!
937	V.I.*11.h.*	CONTROL FOR DIOXINS AND FURANS:					
938	V.I.*11.h.1.*	BIFs equipped with dry PM control that operate w/in temp. range of 450-750 EF-includes emissions testing for dioxins and furans must conduct a site specific risk assessment	266.104(e); D:270.22(a)(6)				Please provide an answer in the Submitted column!
939	V.I.*11.i.*	MONITORING CO AND HC IN THE BY-PASS DUCT OF A CEMENT KILN	266.104(f)				Please provide an answer in the Submitted column!
940	V.I.*11.j.*	USE OF EMISSIONS TESTING DATA TO DEMONSTRATE COMPLIANCE AND ESTABLISH OPERATING LIMITS	266.104(g); D:270.22(a)(6)				Please provide an answer in the Submitted column!
941	V.I.*11.k.*	PARTICULATE MATTER (PM) EMISSIONS CONTROL:	266.105; 266.102(e)(3)				
942	V.I.*11.k.1.*	May not exceed 180 mg/dscf (0.08 grains/dscf) corrected for 7% O2	266.105(a); D:270.22(a)(6)				Please provide an answer in the Submitted column!
943	V.I.*11.k.2.*	Exempt from PM standard if requirements of low risk waste exemption met in 266.109(b)	266.105(b); 270.22(a)(4); D:270.22(a)(6)				Please provide an answer in the Submitted column!
944	V.I.*11.l.*	METAL EMISSIONS CONTROLS:	266.106				
945	V.I.*11.l.1.*	Tier 1 feed rate screening limits for metals are specified in Part 266 Appendix 1 as a function of TESH, terrain type, and land use - No test required:	266.106(b); 270.22(a)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
946	V.I.*11.l.1.a.*	Noncarcinogenic metals in all feed streams (HW, fuel and industrial furnace feed stock)	266.106(b)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
947	V.I.*11.l.1.b.*	Carcinogenic metals in all feed streams HW, fuel and industrial furnace feed stock	266.106(b)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
948	V.I.*11.l.1.c.*	TESH - Terrain -adjusted effective stack height determined	266.106(b)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
949	V.I.*11.l.1.d.*	Terrain type - Noncomplex or Complex	266.106(b)(4); D:270.22(a)(6)				Please provide an answer in the Submitted column!
950	V.I.*11.l.1.e.*	Land use - urban or rural	266.106(b)(5); D:270.22(a)(6)				Please provide an answer in the Submitted column!
951	V.I.*11.l.1.f.*	Multiple stacks - all emissions from calculated worst-case stack	266.106(b)(6); D:270.22(a)(6)				Please provide an answer in the Submitted column!

952	V.I.*11.l.2.*	Tier II emission rate screening limits for metals are specified in Part 266 Appendix I as a function of: TESH, terrain type, and land use. Test required:	266.106(c); D:270.22(a)(6)				Please provide an answer in the Submitted column!
953	V.I.*11.l.2.a.*	Noncarcinogenic metals	266.106(c)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
954	V.I.*11.l.2.b.*	Carcinogenic metals	266.106(c)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
955	V.I.*11.l.2.c.*	Emission rate limits must be implemented by limiting feed rates of metals to trial burn levels, total feed rate per 266.102(e)(6)	266.106(c)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
956	V.I.*11.l.2.d.*	Terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and eligibility criteria in 266.106(b) apply	266.106(c)(4)				Please provide an answer in the Submitted column!
957	V.I.*11.l.2.e.*	Multiple stacks - all emissions from calculated worst-case stack	266.106(c)(5); D:270.22(a)(6)				Please provide an answer in the Submitted column!
958	V.I.*11.l.3.*	Tier III and adjusted Tier I site specific risk assessment - Test required:	266.106(d); D:270.22(a)(6)				Please provide an answer in the Submitted column!
959	V.I.*11.l.3.a.*	Metals control must be demonstrated by testing using air dispersion modeling to predict the maximum annual average off-site ground level concentration and that acceptable ambient levels are not exceeded	266.106(d)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
960	V.I.*11.l.3.b.*	Acceptable ambient levels listed in Part 266 Appendices IV and V	266.106(d)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
961	V.I.*11.l.3.c.*	Carcinogenic metals - sum of the ratios of the predicted maximum annual average off-site ground level concentration to RSDs shall not exceed 1.0	266.106(d)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
962	V.I.*11.l.3.d.*	Noncarcinogenic metals - predicted maximum annual average ground level concentration or each metal shall not exceed the RAC	266.106(d)(4); D:270.22(a)(6)				Please provide an answer in the Submitted column!
963	V.I.*11.l.3.e.*	Multiple stacks - Must perform emissions testing and dispersion modeling to demonstrate aggregate emissions from all stacks do not exceed acceptable ambient levels	266.106(d)(5); D:270.22(a)(6)				Please provide an answer in the Submitted column!
964	V.I.*11.l.3.f.*	Feed rate limits set to levels during TB or conformance	266.106(d)(6); D:270.22(a)(6)				Please provide an answer in the Submitted column!
965	V.I.*11.l.4.*	Adjusted Tier 1 feed rate screening limits - determined using Part 266 Appendix I screening limit and site-specific dispersion modeling - No test required	266.106(e); D:270.22(a)(6)				Please provide an answer in the Submitted column!
966	V.I.*11.l.5.*	Alternative Tier or III implementation approaches	266.106(f); D:270.22(a)(6)				Please provide an answer in the Submitted column!
967	V.I.*11.l.6.*	Emission testing for metals shall be conducted using the Multiple Metals Train as described in Part 266 Appendix IX:	266.106(g); D:270.22(a)(6)				Please provide an answer in the Submitted column!
968	V.I.*11.l.6.a.*	Metal testing shall be conducted using Method 0060	266.106(g)(1)				Please provide an answer in the Submitted column!
969	V.I.*11.l.6.b.*	Hexavalent Chromium – Chromium Emissions are assumed to be hexavalent chromium unless emission testing is conducted using Method 0061	266.106(g)(2)				Please provide an answer in the Submitted column!
970	V.I.*11.l.7.*	Dispersion modeling	266.106(h)				Please provide an answer in the Submitted column!
971	V.I.*11.m.*	HCl & Cl2 EMISSIONS STANDARDS	266.107; D:270.22(e)(5)				
972	V.I.*11.m.1.*	Tier 1 feed rate screening limits - Feed rate screening limits specified in Part 266 Appendix II as a function of TESH, Terrain type, and land use - Analysis required: Feed rate of total chlorine and chloride, organic and inorganic, in HW, fuels and industrial furnace feed stocks	266.107(b)(1); 270.22(a)(5); D:270.22(a)(6)				Please provide an answer in the Submitted column!
973	V.I.*11.m.2.*	Tier II emissions rate screening limits - Emission rate screening limits specified in Part 266, Appendix III as a function of TESH, Terrain type, and land use - emission testing is required:	266.107(b)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!
974	V.I.*11.m.2.a.*	Terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and eligibility criteria in 266.106(b) apply	266.107(b)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
975	V.I.*11.m.2.b.*	Multiple stacks - If more than one on-site stack from a BIF, the incinerator or other treatment unit is subject to control HCl and Cl2 under RCRA permit or interim status and must comply Tier I and II screening limits	266.107(b)(4); D:270.22(a)(6)				Please provide an answer in the Submitted column!
976	V.I.*11.m.3.*	Tier III Site - Specific Risk Assessments - Emissions testing is required:	266.107(c)				Please provide an answer in the Submitted column!
977	V.I.*11.m.3.a.*	Emission rate for HCl and Cl2 - demonstrated by using air dispersion modeling to predict the maximum annual average off-site ground level concentration for HCl and Cl2 and demonstrate that acceptable ambient levels are not exceeded	266.107(c)(1); D:270.22(a)(6)				Please provide an answer in the Submitted column!
978	V.I.*11.m.3.b.*	Acceptable ambient levels are listed in Part 266 Appendix IV for HCl and Cl2	266.106(c)(2); D:270.22(a)(6)				Please provide an answer in the Submitted column!

979	V.I.*11.m.4.*	MULTIPLE STACKS - must demonstrate that aggregate emissions for all on-site stacks do not exceed acceptable ambient levels	266.107(c)(3); D:270.22(a)(6)				Please provide an answer in the Submitted column!
980	V.I.*11.m.5.*	Averaging periods defined in 266.102(e)(6)	266.107(d); D:270.22(a)(6)				Please provide an answer in the Submitted column!
981	V.I.*11.m.6.*	Adjusted Tier 1 feed rate screening limits - No testing is required	266.107(e); D:270.22(a)(6)				Please provide an answer in the Submitted column!
982	V.I.*11.m.7.*	Emission testing - HCl and Cl2 sampling shall be conducted using the procedures described in Part 266 Appendix IX	266.107(f); D:270.22(a)(6)				Please provide an answer in the Submitted column!
983	V.I.*11.m.8.*	Dispersion modeling per 40 CFR 266.106(h)	266.107(g)				Please provide an answer in the Submitted column!
984	V.I.*11.n.*	Provide a Quality Assurance Project Plan for the Trial Burn Plan	Guidance				Please provide an answer in the Submitted column!
985	V.I.*11.o.*	ADDITIONAL DATA FOR DATA IN LIEU OF TESTING (DILO):	270.22(a)(6)				
986	V.I.*11.o.1.*	Comparison of wastes description and analysis	270.22(a)(6)(i)(A)				Please provide an answer in the Submitted column!
987	V.I.*11.o.2.*	Comparison of design and operating conditions as required by 270.66 - for both devices	270.22(a)(6)(i)(B)				Please provide an answer in the Submitted column!
988	V.I.*11.o.3.*	Data QA/QC for Data Validation including Chromatograms, Chain of Custody, Sample Preservation Records, Laboratory Notes, etc.	270.22(a)(6)(i)(C); Guidance; EPA Publication SW-846				Please provide an answer in the Submitted column!
989	V.I.*11.o.4.*	Other Information for Comparison including, but not limited to, Engineering Drawings, including boiler, combustion chamber, air pollution control devices, sampling ports and access, PED, PI&D, elevations and plan views, instrument/control measurement locations, piping, containment, vessels, specifications, and calculations, all sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	270.22(a)(6)(i)(C)				Please provide an answer in the Submitted column!
990	V.I.*12.*	STANDARDS FOR DIRECT TRANSFER	266.111				
991	V.I.*12.a.*	The regulations in this section apply to owners and operators of boilers and industrial furnaces subject to §§ 266.102 or 266.103 if hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit	266.111(a) and (b)				Please provide an answer in the Submitted column!
992	V.I.*12.b.*	General operating requirements:	266.111(c)				Please provide an answer in the Submitted column!
993	V.I.*12.b.1.*	No direct transfer of a pumpable hazardous waste shall be conducted from an open-top container to a boiler or industrial furnace	266.111(c)(1)				Please provide an answer in the Submitted column!
994	V.I.*12.b.2.*	Direct transfer equipment used for pumpable hazardous waste shall always be closed, except when necessary to add or remove the waste, and shall not be opened, handled, or stored in a manner that may cause any rupture or leak	266.111(c)(2)				Please provide an answer in the Submitted column!
995	V.I.*12.b.3.*	The direct transfer of hazardous waste to a boiler or industrial furnace shall be conducted so that it does not:	266.111(c)(3)				Please provide an answer in the Submitted column!
996	V.I.*12.b.3.a.*	Generate extreme heat or pressure, fire, explosion, or violent reaction	266.111(c)(3)(i)				Please provide an answer in the Submitted column!
997	V.I.*12.b.3.b.*	Produce uncontrolled toxic mists, fumes, dusts, or gases in quantities to threaten human health	266.111(c)(3)(ii)				Please provide an answer in the Submitted column!
998	V.I.*12.b.3.c.*	Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions	266.111(c)(3)(iii)				Please provide an answer in the Submitted column!
999	V.I.*12.b.3.d.*	Damage the structural integrity of the container or direct transfer equipment containing the waste	266.111(c)(3)(iv)				Please provide an answer in the Submitted column!
1000	V.I.*12.b.3.e.*	Adversely affect the capability of the boiler or industrial furnace to meet the standards provided by §§ 266.104 through 266.107	266.111(c)(3)(v)				Please provide an answer in the Submitted column!
1001	V.I.*12.b.3.f.*	Threaten human health or the environment	266.111(c)(3)(vi)				Please provide an answer in the Submitted column!
1002	V.I.*12.b.4.e.*	Hazardous waste shall not be placed in direct transfer equipment if it could cause the equipment or its secondary containment system to rupture, leak, corrode, or otherwise fail	266.111(c)(4)				Please provide an answer in the Submitted column!
1003	V.I.*12.b.5.*	The owner or operator of the facility shall use appropriate controls and practices to prevent spills and overflows from the direct transfer equipment or its secondary containment systems. These include at a minimum:	266.111(c)(5)				Please provide an answer in the Submitted column!
1004	V.I.*12.b.5.a.*	Spill prevention controls (e.g., check valves, dry discount couplings)	266.111(c)(5)(i)				Please provide an answer in the Submitted column!
1005	V.I.*12.b.5.b.*	Automatic waste feed cutoff to use if a leak or spill occurs from the direct transfer equipment	266.111(c)(5)(ii)				Please provide an answer in the Submitted column!

1006	V.I.*12.c.*	Areas where direct transfer vehicles (containers) are located. Applying the definition of container under this section, owners and operators must comply with the following requirements:	266.111(d)				Please provide an answer in the Submitted column!
1007	V.I.*12.c.1.*	The containment requirements of § 264.175 of this chapter	266.111(d)(1)				Please provide an answer in the Submitted column!
1008	V.I.*12.c.2.*	The use and management requirements of subpart I, part 265 of this chapter, except for §§ 265.170 and 265.174, and except that in lieu of the special requirements of § 265.176 for ignitable or reactive waste, the owner or operator may comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjacent property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's (NFPA) "Flammable and Combustible Liquids Code," (1977 or 1981), (incorporated by reference, see § 260.11). The owner or operator must obtain and keep on file at the facility a written certification by the local Fire Marshall that the installation meets the subject NFPA codes	266.111(d)(2)				Please provide an answer in the Submitted column!
1009	V.I.*12.c.3.*	The closure requirements of § 264.178 of this chapter	266.111(d)(3)				Please provide an answer in the Submitted column!
1010	V.I.*12.d.*	Direct transfer equipment must meet the following requirements:	266.111(e)				Please provide an answer in the Submitted column!
1011	V.I.*12.d.1.*	Owners and operators shall comply with the secondary containment requirements of § 265.193 of this chapter, except for paragraphs 265.193 (a), (d), (e), and (i) as follows:	266.111(e)(1)				Please provide an answer in the Submitted column!
1012	V.I.*12.d.1.a.*	For all new direct transfer equipment, prior to their being put into service	266.111(e)(1)(i)				Please provide an answer in the Submitted column!
1013	V.I.*12.d.1.b.*	For existing direct transfer equipment within 2 years after August 21, 1991	266.111(e)(1)(ii)				Please provide an answer in the Submitted column!
1014	V.I.*12.d.2.*	Requirements prior to meeting secondary containment requirements	266.111(e)(2)				Please provide an answer in the Submitted column!
1015	V.I.*12.d.2.a.*	Existing direct transfer equipment that does not have secondary containment, the owner or operator shall determine whether the equipment is leaking or is unfit for use and shall obtain and keep on file a written assessment reviewed and certified by a qualified, registered professional engineer in accordance with § 270.11(d) of this chapter	266.111(e)(2)(i)				Please provide an answer in the Submitted column!
1016	V.I.*12.d.2.b.*	Determine whether the direct transfer equipment is adequately designed and has sufficient structural strength and compatibility with the waste(s) to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment shall consider the following:	266.111(e)(2)(ii)				Please provide an answer in the Submitted column!
1017	V.I.*12.d.2.b.1.*	Design standard(s) to which the direct transfer equipment was constructed	266.111(e)(2)(ii)(A)				Please provide an answer in the Submitted column!
1018	V.I.*12.d.2.b.2.*	Hazardous characteristics of the waste(s) that have been or will be handled	266.111(e)(2)(ii)(B)				Please provide an answer in the Submitted column!
1019	V.I.*12.d.2.b.3.*	Existing corrosion protection measures	266.111(e)(2)(ii)(C)				Please provide an answer in the Submitted column!
1020	V.I.*12.d.2.b.4.*	Documented age of the equipment (otherwise, an estimate of the age)	266.111(e)(2)(ii)(D)				Please provide an answer in the Submitted column!
1021	V.I.*12.d.2.b.5.*	Results of a leak test or other integrity examination so that effects of temperature variations, vapor pockets, cracks, leaks, corrosion, and erosion are accounted for	266.111(e)(2)(ii)(E)				Please provide an answer in the Submitted column!
1022	V.I.*12.d.2.c.*	If the direct transfer equipment is found to be leaking or unfit for use, the owner or operator shall comply with the requirements of §§ 265.196 (a) and (b) of this chapter	266.111(e)(2)(iii)				Please provide an answer in the Submitted column!
1023	V.I.*12.d.3.*	Inspections and recordkeeping	266.111(e)(3)				Please provide an answer in the Submitted column!
1024	V.I.*12.d.3.a.*	The owner or operator must inspect at least once each operating hour when hazardous waste during transferred from the transport vehicle (container) to the B/IF:	266.111(e)(3)(i)				Please provide an answer in the Submitted column!
1025	V.I.*12.d.3.a.1.*	Overfill/spill control equipment to ensure it is in good working order	266.111(e)(3)(i)(A)				Please provide an answer in the Submitted column!
1026	V.I.*12.d.3.a.2.*	The above ground portions of the direct transfer equipment to detect corrosion, erosion, or releases of waste	266.111(e)(3)(i)(B)				Please provide an answer in the Submitted column!
1027	V.I.*12.d.3.a.3.*	Data from monitoring equipment and leak-detection equipment to ensure that the direct transfer equipment is being operated according to its design	266.111(e)(3)(i)(C)				Please provide an answer in the Submitted column!
1028	V.I.*12.d.3.b.*	The owner or operator must inspect cathodic protection systems, if used, for proper functioning according to the schedule provided by § 265.195(b):	266.111(e)(3)(ii)				Please provide an answer in the Submitted column!
1029	V.I.*12.d.3.c.*	Records of inspections made under this paragraph shall be maintained in the operating record at the facility, available for inspection at least 3 years from the inspection date	266.111(e)(3)(iii)				Please provide an answer in the Submitted column!
1030	V.I.*12.d.4.*	Design and installation of new equipment. Must comply with § 265.192	266.111(e)(4)				Please provide an answer in the Submitted column!
1031	V.I.*12.d.5.*	Response to leaks or spills must comply with § 265.196	266.111(e)(5)				Please provide an answer in the Submitted column!

1032	V.I.*12.d.6.*	Owners and operators must comply with § 265.197 for Closure, except for § 265.197 (c)(2) through (c)(4)	266.111(e)(6)				Please provide an answer in the Submitted column!
1033	V.J.	Drip Pads	335.152(a)(15); 264 subpart W				
1034	V.J.~.	Submit a Drip Pad Engineering Report including at a minimum:	264.570-573; 270.26				Please provide an answer in the Submitted column!
1035	V.J.1.	Complete and submit Table V.J.1. - Drip Pads in hard copy and editable electronic format	270.26(a)				Please provide an answer in the Submitted column!
1036	V.J.2.	Complete and submit Table V.J.2. - Drip Pad Synthetic Liner System in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1037	V.J.3.~.	Describe detailed plans and engineering report, including:					Please provide an answer in the Submitted column!
1038	V.J.3.~.	The engineering report must address:					Please provide an answer in the Submitted column!
1039	V.J.3.~.*a.*	Design characteristics:	264.573; 270.26(c)(1)				Please provide an answer in the Submitted column!
1040	V.J.3.~.*a.1.*	Constructed of non-earthen materials	264.573(a)(1)				Please provide an answer in the Submitted column!
1041	V.J.3.~.*a.2.*	Sloped to free-drain treated wood drippage, rain, and other waters or solutions	264.573(a)(2)				Please provide an answer in the Submitted column!
1042	V.J.3.~.*a.3.*	Curb or berm around the perimeter	264.573(a)(3)				Please provide an answer in the Submitted column!
1043	V.J.3.~.*a.4.*	Hydraulic conductivity of less than or equal to 1x10-7 cm/s	264.573(a)(4)(i)				Please provide an answer in the Submitted column!
1044	V.J.3.~.*a.5.*	Sufficient strength and thickness	264.573(a)(5)				Please provide an answer in the Submitted column!
1045	V.J.3.~.*b.*	For artificial liners:					Please provide an answer in the Submitted column!
1046	V.J.3.a.	Seaming method					Please provide an answer in the Submitted column!
1047	V.J.3.b.	Surface preparation method					Please provide an answer in the Submitted column!
1048	V.J.3.c.	Tensile strength					Please provide an answer in the Submitted column!
1049	V.J.3.d.	Impact resistance					Please provide an answer in the Submitted column!
1050	V.J.3.e.	Compatibility Demonstration					Please provide an answer in the Submitted column!
1051	V.J.3.f.	Foundation design (settlement potential, bearing capacity/stability and potential for bottom heave blow-out)					Please provide an answer in the Submitted column!
1052	V.J.3.~.*c.*	For leakage collection system:					Please provide an answer in the Submitted column!
1053	V.J.3.g.	Capacity of system:					Please provide an answer in the Submitted column!
1054	V.J.3.g.1.	Rate of leakage removal					Please provide an answer in the Submitted column!
1055	V.J.3.g.2.	Capacity of sumps					Please provide an answer in the Submitted column!
1056	V.J.3.g.3.	Thickness of mounding & maximum hydraulic head					Please provide an answer in the Submitted column!
1057	V.J.3.h.	Pipe material and strength					Please provide an answer in the Submitted column!
1058	V.J.3.i.	Pipe network spacing and grading					Please provide an answer in the Submitted column!
1059	V.J.3.j.	Collection sump material and strength					Please provide an answer in the Submitted column!
1060	V.J.3.k.	Drainage media specifications & performance					Please provide an answer in the Submitted column!
1061	V.J.3.l.	Analysis that shows pipe and pipe perforation size will prevent clogging					Please provide an answer in the Submitted column!
1062	V.J.3.m.	Compatibility demonstration					Please provide an answer in the Submitted column!
1063	V.J.*4.*	Provide description of leak detection system (applies only if drip pads are constructed after 12/24/92 per 264.570(a)	270.26(c)(3)				Please provide an answer in the Submitted column!
1064	V.J.*5.*	Provide description of how drip pad will be maintained	270.26(c)(4)				Please provide an answer in the Submitted column!
1065	V.J.*6.*	Provide description of the collection system	270.26(c)(5)				Please provide an answer in the Submitted column!
1066	V.J.*7.*	Provide description of control of run-on	270.26(c)(6)				Please provide an answer in the Submitted column!
1067	V.J.*8.*	Provide description of control of run-off	270.26(c)(7)				Please provide an answer in the Submitted column!
1068	V.J.*9.*	Provide description of when drippage will be removed from collection system to prevent overflow	270.26(c)(8)				Please provide an answer in the Submitted column!
1069	V.J.*10.*	Provide description of procedures for cleaning the drip pad (at least weekly)	270.26(c)(9)				Please provide an answer in the Submitted column!
1070	V.J.*11.*	Provide description of operating practices and procedures	264.573; 270.26(c)(10)				Please provide an answer in the Submitted column!
1071	V.J.*12.*	Provide description of removal procedures for waste	270.26(c)(11)				Please provide an answer in the Submitted column!
1072	V.J.*13.*	Provide description of collection and holding units for run-on/off are emptied	270.26(c)(12)				Please provide an answer in the Submitted column!
1073	V.J.*14.*	Provide description of process equipment used if treatment is carried out on the drippad;	270.26(c)(13)				Please provide an answer in the Submitted column!
1074	V.J.*15.*	Provide descriptions of inspection requirements in accordance with 264.573 and 270.14(b)(5)	270.26(c)(14)				Please provide an answer in the Submitted column!
1075	V.J.*16.*	Provide description of how HW residues and contaminated materials will be removed from Drip Pads at closure	270.26(c)(16)				Please provide an answer in the Submitted column!

1076	V.J.*17.*	If applicant elects to comply with 264.572(b) instead of 264.572(a), demonstrate the drip pad has the following:	264.573(b)				Please provide an answer in the Submitted column!
1077	V.J.*17.a.*	Synthetic liner installed below the drip pad. The liner must have: sufficient thickness and strength, foundation capable of supporting; and installed to cover all surrounding land that could come into contact with waste	264.573(b)(1)				Please provide an answer in the Submitted column!
1078	V.J.*17.b.*	Leakage detection system installed above the liner and must be/have:	264.573(b)(2)				Please provide an answer in the Submitted column!
1079	V.J.*17.b.1.*	Chemically resistant	264.573(b)(2)(i)(A)				Please provide an answer in the Submitted column!
1080	V.J.*17.b.2.*	Sufficient strength and thickness	264.573(b)(2)(i)(B)				Please provide an answer in the Submitted column!
1081	V.J.*17.b.3.*	Prevention of clogging	264.573(b)(2)(ii)				Please provide an answer in the Submitted column!
1082	V.J.*17.b.4.*	Designed to detect failure	264.573(b)(2)(iii)				Please provide an answer in the Submitted column!
1083	V.J.*17.c.*	Leakage detection system above the liner designed to collect leakage from the drip pad. Permittee must record, etc. any leakage collected	264.573(b)(3)				Please provide an answer in the Submitted column!
1084	V.J.*18.*	Describe how you will ensure drip pads are free of cracks, gaps, corrosion or other deterioration	264.573(c)				Please provide an answer in the Submitted column!
1085	V.J.*19.*	Demonstrate how the drip pad is designed to convey, drain, and collect liquid resulting from drippage or precipitation to prevent run-off	264.573(d)				Please provide an answer in the Submitted column!
1086	V.J.*20.*	Unless protected by structure described in 264.570 (b) ensure drip pads have run-on control system (TCEQ recommends 25-yr, 24-hr rainfall event)	264.573(e)				Please provide an answer in the Submitted column!
1087	V.J.*21.*	Unless protected by structure described in 264.570 (b) ensure drip pads have run-off control system (TCEQ recommends 25-yr, 24-hr rainfall event)	264.573(f)				Please provide an answer in the Submitted column!
1088	V.J.*22.*	Describe the means of overflow prevention	264.573(h)				Please provide an answer in the Submitted column!
1089	V.J.*23.*	Indicate the inspection frequency	264.573(i)				Please provide an answer in the Submitted column!
1090	V.J.*24.*	Describe procedures that ensure all hazardous waste (HW) is held on drip pad until drippage ceases	264.573(k)				Please provide an answer in the Submitted column!
1091	V.J.*25.*	Describe procedures that ensure run-on/off removed ASAP after storms	264.573(l)				Please provide an answer in the Submitted column!
1092	V.J.*26.*	Management of release of HW from the drip pad: Provide a plan of removing wastes, caused by a release of HW (e.g., leakage from leak detection system), that includes:	264.573(m) 264.573(m)(1)				Please provide an answer in the Submitted column!
1093	V.J.*26.a.*	Documentation of record of discovery	264.573(m)(1)(i)				Please provide an answer in the Submitted column!
1094	V.J.*26.b.*	Documentation of the portion of the drip pad involved	264.573(m)(1)(ii)				Please provide an answer in the Submitted column!
1095	V.J.*26.c.*	Steps necessary to repair and clean-up release	264.573(m)(1)(iii)				Please provide an answer in the Submitted column!
1096	V.J.*26.d.*	Notification of the Regional office and Ex. Director	264.573(m)(1)(iv)				Please provide an answer in the Submitted column!
1097	V.J.*27.*	Provide documentation of procedures to maintain records in the facility	264.573(o)				Please provide an answer in the Submitted column!
1098	V.J.*28.*	Provide assessment of existing pad integrity: including written plan for upgrading, repairing and modifying to meet the requirements of 264.573(b) and PE certification	264.571				Please provide an answer in the Submitted column!
1099	V.J.*29.*	Provide certification requirements sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	264.571(a); 264.573(a)(4)(ii); 264.573(g); 264.573(m)(3); 270.26(c)(15)				Please provide an answer in the Submitted column!
1100	V.K.	Miscellaneous Units	335.152(a)(16); 270.23				
1101	V.K.~.	Submit a Miscellaneous Unit(s) Engineering Report including the following at a minimum:	264.600-602				Please provide an answer in the Submitted column!
1102	V.K.1.	Complete and submit Table V.K - Miscellaneous Units in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1103	V.K.2.	Provide application information on design requirements of 305 and 335 and 264 subparts I through O; Part 270; Part 63, subpart EEE; and Part 146, as appropriate	264.601(a)				Please provide an answer in the Submitted column!
1104	V.K.3.	For units which involves combustion, provide emission data or trial burn plan; complete Tables V.H.1-5 (for incinerators) or Tables V.I.1-5 (for BIFs)					Please provide an answer in the Submitted column!
1105	V.K.*4.*	Provide Engineering Report including the following:					Please provide an answer in the Submitted column!
1106	V.K.*4.a.*	Air Quality Addendum should be completed, Section IX of Part B					Please provide an answer in the Submitted column!
1107	V.K.*4.b.*	Plans and description of the design, construction, and operation of the miscellaneous units					Please provide an answer in the Submitted column!
1108	V.K.*4.c.*	Physical characteristics of materials in construction of the miscellaneous unit					Please provide an answer in the Submitted column!
1109	V.K.*4.d.*	Address prevention of releases to groundwater or subsurface environment:	264.601(a)				Please provide an answer in the Submitted column!
1110	V.K.*4.d.1.*	Amount, characteristics potential migration of wastes	264.601(a)(1)				Please provide an answer in the Submitted column!

1111	V.K.*4.d.2.*	Hydrogeologic/geologic of the unit and area	264.601(a)(2)				Please provide an answer in the Submitted column!
1112	V.K.*4.d.3.*	Quality of groundwater	264.601(a)(3)				Please provide an answer in the Submitted column!
1113	V.K.*4.d.4.*	Quantity and flow direction	264.601(a)(4)				Please provide an answer in the Submitted column!
1114	V.K.*4.d.5.*	Proximity to groundwater users and rates	264.601(a)(5)				Please provide an answer in the Submitted column!
1115	V.K.*4.d.6.*	Land use	264.601(a)(6)				Please provide an answer in the Submitted column!
1116	V.K.*4.d.7.*	Potential to affect surface waters	264.601(a)(7)				Please provide an answer in the Submitted column!
1117	V.K.*4.d.8 .*	Potential for health risks	264.601(a)(8)				Please provide an answer in the Submitted column!
1118	V.K.*4.d.9.*	Potential for damage by exposure	264.601(a)(9)				Please provide an answer in the Submitted column!
1119	V.K.*4.e.*	Prevention of adverse effects through surface water considering:	264.601(b)				Please provide an answer in the Submitted column!
1120	V.K.*4.e.1.*	Amount and characteristics of wastes	264.601(b)(1)				Please provide an answer in the Submitted column!
1121	V.K.*4.e.2.*	Confining and collecting systems	264.601(b)(2)				Please provide an answer in the Submitted column!
1122	V.K.*4.e.3.*	Hydrogeologic characteristics & topography of unit & area	264.601(b)(3)				Please provide an answer in the Submitted column!
1123	V.K.*4.e.4.*	Patterns of precipitation	264.601(b)(4)				Please provide an answer in the Submitted column!
1124	V.K.*4.e.5.*	Quality, quantity, direction of groundwater flow	264.601(b)(5)				Please provide an answer in the Submitted column!
1125	V.K.*4.e.6.*	Proximity to surface waters & soils	264.601(b)(6)				Please provide an answer in the Submitted column!
1126	V.K.*4.e.7.*	Uses & quality standards for surface waters	264.601(b)(7)				Please provide an answer in the Submitted column!
1127	V.K.*4.e.8.*	Quality of surface waters & soils	264.601(b)(8)				Please provide an answer in the Submitted column!
1128	V.K.*4.e.9.*	Land use	264.601(b)(9)				Please provide an answer in the Submitted column!
1129	V.K.*4.e.10.*	Potential for health risks	264.601(b)(10)				Please provide an answer in the Submitted column!
1130	V.K.*4.e.11.*	Potential for damage by exposure	264.601(b)(11)				Please provide an answer in the Submitted column!
1131	V.K.*4.f.*	Prevention of releases through air:	264.601(c)				Please provide an answer in the Submitted column!
1132	V.K.*4.f.1.*	Amount & characteristics of waste	264.601(c)(1)				Please provide an answer in the Submitted column!
1133	V.K.*4.f.2.*	Effectiveness of systems to prevent emissions	264.601(c)(2)				Please provide an answer in the Submitted column!
1134	V.K.*4.f.3.*	Operating characteristics	264.601(c)(3)				Please provide an answer in the Submitted column!
1135	V.K.*4.f.4.*	Meteorologic & topographic characteristics surrounding area	264.601(c)(4)				Please provide an answer in the Submitted column!
1136	V.K.*4.f.5.*	Local air quality	264.601(c)(5)				Please provide an answer in the Submitted column!
1137	V.K.*4.f.6.*	Potential for health risks	264.601(c)(6)				Please provide an answer in the Submitted column!
1138	V.K.*4.f.7.*	Potential for damage by exposure	264.601(c)(7)				Please provide an answer in the Submitted column!
1139	V.K.*4.g.*	Monitoring, analysis, inspection, response, reporting and corrective action	264.602				Please provide an answer in the Submitted column!
1140	V.K.*4.h.*	Detailed hydrologic, geologic, and meteorologic assessments and land use maps	270.23 (b)				Please provide an answer in the Submitted column!
1141	V.K.*4.i.*	Exposure information	270.23(c)				Please provide an answer in the Submitted column!
1142	V.K.*4.j.*	Laboratory testing area	270.23(d)				Please provide an answer in the Submitted column!
1143	V.K.*4.k.*	Any additional information determined by the Director for evaluation of unit and environmental performance standards of 264.100(b)	270.23(e)				Please provide an answer in the Submitted column!
1144	V.K.*5.*	Provide detailed plans and specifications individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	305.50(a)(7)				Please provide an answer in the Submitted column!
1145	V.L.	Containment Buildings	335.152(a)(20); 264 Subpart DD				
1146	V.L.~.	Submit a Miscellaneous Unit(s) Engineering Report including the following at a minimum:	264.1100-1101(c)(3) and 264.1101(d-e)				Please provide an answer in the Submitted column!
1147	V.L.*1.*	Complete and submit Table V.L. - Containment Buildings in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1148	V.L.*2.*	Provide plans and description of the design, construction, and operation of the containment building:	264.1101				Please provide an answer in the Submitted column!
1149	V.L.*2.a.*	Completely enclosed to prevent precipitation, wind, and run-on	264.1101(a)(1)				Please provide an answer in the Submitted column!
1150	V.L.*2.b.*	Should be constructed with structural strength and thickness and address:	264.1101(a)(2)				Please provide an answer in the Submitted column!
1151	V.L.*2.b.1.*	Primary barrier against fugitive dust emissions	264.1101(a)(2)(i)				Please provide an answer in the Submitted column!
1152	V.L.*2.b.2.*	Ability to prevent wastes from migration	264.1101(a)(2)(ii)				Please provide an answer in the Submitted column!
1153	V.L.*2.c.*	Compatibility data	264.1101(a)(3)				Please provide an answer in the Submitted column!
1154	V.L.*2.d.*	The primary barrier	264.1101(a)(4)				Please provide an answer in the Submitted column!
1155	V.L.*2.e.*	Containment buildings used to manage wastes containing free liquids should have:	264.1101(b)				Please provide an answer in the Submitted column!
1156	V.L.*2.e.1.*	Primary barrier to prevent migration	264.1101(b)(1)				Please provide an answer in the Submitted column!
1157	V.L.*2.e.2.*	Liquid collection and removal system (e.g. geomembrane covered by a concrete surface) that is sloped to drain liquids and minimize hydraulic head on the containment system at the earliest practicable time	264.1101(b)(2)				Please provide an answer in the Submitted column!

1158	V.L.2.e.3.	Secondary containment system including secondary barrier and leak detection system constructed with:	264.1101(b)(3)				Please provide an answer in the Submitted column!
1159	V.L.2.e.3.a.	A bottom slope of 1% or more	264.1101(b)(3)(i)(A)				Please provide an answer in the Submitted column!
1160	V.L.2.e.3.b.	Granular drainage material with hydraulic conductivity of 1x10-2 cm/s or more and a thickness of 12 in. or constructed with synthetic or geonet with transmissivity of 3x10-5 m2/s or more	264.1101(b)(3)(i)(B); 264.1101(b)(3)(ii)				Please provide an answer in the Submitted column!
1161	V.L.2.e.3.c.	Materials that are chemically resistant	264.1101(b)(3)(iii)				Please provide an answer in the Submitted column!
1162	V.L.2.f.1.	Controls and practices to ensure containment of HW within the unit, at a minimum must address or contain:	264.1101(c)(1)				Please provide an answer in the Submitted column!
1163	V.L.2.f.1.a.	Primary barrier: free of cracks, gaps, corrosion or other deterioration	264.1101(c)(1)(i)				Please provide an answer in the Submitted column!
1164	V.L.2.f.1.b.	Maintain level of stored treated HW within the containment walls	264.1101(c)(1(ii)				Please provide an answer in the Submitted column!
1165	V.L.2.f.1.c.	Measures to prevent tracking of HW outside of the unit	264.1101(c)(1)(iii)				Please provide an answer in the Submitted column!
1166	V.L.2.f.1.d.	Measures to control fugitive air emissions	264.1101(c)(1)(iv)				Please provide an answer in the Submitted column!
1167	V.L.2.f.2.	Certification signed by a licensed PE that the building meets the design requirements	264.1101(c)(2)				Please provide an answer in the Submitted column!
1168	V.L.2.f.3.	Procedures in case of release or repair of the unit	264.1101(c)(3)				Please provide an answer in the Submitted column!
1169	V.L.2.g.	For containment buildings that contain areas with and without a secondary containment system permittee must address:	264.1101(d)				Please provide an answer in the Submitted column!
1170	V.L.2.g.1.	Design and operation in accordance with 246.1101(a-c)	264.1101(d)(1)				Please provide an answer in the Submitted column!
1171	V.L.2.g.2.	Prevent release of liquids	264.1101(d)(2)				Please provide an answer in the Submitted column!
1172	V.L.2.g.3.	Maintain facility's operating log	264.1101(d)(3)				Please provide an answer in the Submitted column!
1173	V.L.2.h.	Waiver requirements for secondary containment	264.1101(e)				Please provide an answer in the Submitted column!
1174	V.L.3.	Provide detailed plans and specifications individually sealed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number	305.50(a)(7)				Please provide an answer in the Submitted column!
1349	VI.D.	Unsaturated Zone Monitoring	264.278				Please provide an answer in the Submitted column!
1350	VI.D.1.	Provide list of all hazardous constituents:	264.278(a)				Please provide an answer in the Submitted column!
1351	VI.D.1.a.	Current parameters	264.278(a)				Please provide an answer in the Submitted column!
1352	VI.D.1.b.	Proposed parameters	264.278(a)				Please provide an answer in the Submitted column!
1353	VI.D.2.	Provide number of soil-pore liquid sample points:	264.278(b)				Please provide an answer in the Submitted column!
1354	VI.D.2.c.	Depth of sample points	264.278(b)				Please provide an answer in the Submitted column!
1355	VI.D.2.d.	Equipment used for soil-pore liquid monitoring	264.278(b)				Please provide an answer in the Submitted column!
1356	VI.D.3.	Provide number of soil-core sampling points:					Please provide an answer in the Submitted column!
1357	VI.D.3.e.	Depth of soil-core sampling points					Please provide an answer in the Submitted column!
1358	VI.D.3.f.	Indicate on a facility map location of all sampling points					Please provide an answer in the Submitted column!
1363	VII.~.3.	Closure Performance Standards describes how closure would: minimize the need for further maintenance; control, minimize, or eliminate post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and comply with the closure requirements of Subpart G and unit-specific closure requirements	264.111				Please provide an answer in the Submitted column!
1364	VII.A.	Closure					
1365	VII.A.1.	Complete and submit Table VII.A - Unit Closure in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1366	VII.A.2.	Provide time and activities required for partial and final closure activities including:	264.112(b)				Please provide an answer in the Submitted column!
1367	VII.A.2.a.	Description of closure of each unit	264.112(b)(1)				Please provide an answer in the Submitted column!
1368	VII.A.2.b.	Final closure and maximum extent of operation	264.112(b)(2)				Please provide an answer in the Submitted column!
1369	VII.A.2.c.	Maximum waste inventory over the active life of the facility	264.112(b)(3)				Please provide an answer in the Submitted column!
1370	VII.A.2.d.	Inventory removal, disposal or decontamination of equipment , structures and soils	264.112(b)(4)				Please provide an answer in the Submitted column!
1371	VII.A.2.e.	Detailed description of other activities during closure (i.e. ground-water monitoring, leachate collection, and run-on and run-off control)	264.112(b)(5)				Please provide an answer in the Submitted column!
1372	VII.A.2.f.	Schedule for closure of each unit and for final closure of the facility	264.112(b)(6)				Please provide an answer in the Submitted column!
1373	VII.A.2.g.	Estimate of expected year of final closure	264.112(b)(7)				Please provide an answer in the Submitted column!

1374	VII.A.3.	Certification of Closure: Submit a certification to TCEQ IHW Section which indicates that within 60 days of completion of closure of each hazardous waste surface impoundment, waste pile, land treatment, and landfill unit, and within 60 days of the completion of final closure, that a Certification of Closure and report must be submitted to TCEQ IHW Section for review.	264.115				Please provide an answer in the Submitted column!
1375	VII.A.4.	Closure of Containers: plan must ensure that:	264.178				Please provide an answer in the Submitted column!
1376	VII.A.4.a.	All wastes and waste residues must be removed from containment system	264.178				Please provide an answer in the Submitted column!
1377	VII.A.4.b.	Containers, liner, bases, and soil containing or contaminated with HW or residues must be decontaminated removed at closure	264.178; 350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1378	VII.A.5.	Closure of Tank Systems: plan must ensure that closure will:	264.197				Please provide an answer in the Submitted column!
1379	VII.A.5.a.	Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, structures and equipment contaminated with waste	264.197(a); 350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1380	VII.A.5.b.	If not all contaminated soils can be practically removed, perform closure and post-closure as a landfill per 264.310 and 350.33 Remedy Standard B	264.197(b)				Please provide an answer in the Submitted column!
1381	VII.A.5.c.	A contingent closure and post-closure plan for closure as a landfill if tank system does not have satisfactory secondary containment per 264.193(b-f) and not granted variance for the secondary containment system per 264.193(g), the plan must include:	264.197(c); 350.33 Remedy Standard B				Please provide an answer in the Submitted column!
1382	VII.A.5.c.1.	Requirements under 264.197(a-b)	264.197(c)(1)				Please provide an answer in the Submitted column!
1383	VII.A.5.c.2.	Contingent post-closure care plan	264.197(c)(2)				Please provide an answer in the Submitted column!
1384	VII.A.5.c.3.	Cost estimates for closure and post-closure care and contingent closure and post-closure plan	264.197(c)(3)				Please provide an answer in the Submitted column!
1385	VII.A.5.c.4.	Financial assurance based on 264.197(c)(3)	264.197(c)(4)				Please provide an answer in the Submitted column!
1386	VII.A.5.c.5.	Must meet all financial responsibility requirements for landfills under 264, Subparts G and H	264.197(c)(5)				Please provide an answer in the Submitted column!
1387	VII.A.6.	Closure of Surface Impoundments: plan must ensure that closure will:	335.169; 264.228				Please provide an answer in the Submitted column!
1388	VII.A.6.a.	Remove and decontaminate all wastes and contaminated materials	335.169(a)(1); 264.228(a)(1)				Please provide an answer in the Submitted column!
1389	VII.A.6.b.	Eliminate free liquid wastes or solidify/stabilize remaining materials	335.169(a)(2); 264.228(a)(2)(i-ii)				Please provide an answer in the Submitted column!
1390	VII.A.6.c.	SI Final cover must be designed and constructed to:	264.228(a)(2)(iii)				Please provide an answer in the Submitted column!
1391	VII.A.6.c.1.	Provide long-term minimization of the migration of liquids through the closed impoundment	335.169(a)(2)(A); 264.228(a)(2)(iii)(A)				Please provide an answer in the Submitted column!
1392	VII.A.6.d.	Minimize maintenance	335.169(a)(2)(B); 264.228(a)(2)(iii)(B)				Please provide an answer in the Submitted column!
1393	VII.A.6.e.	Promote drainage and minimize erosion or abrasion	335.169(a)(2)(C); 264.228(a)(2)(iii)(C)				Please provide an answer in the Submitted column!
1394	VII.A.6.f.	Accommodate settling and subsidence	335.169(a)(2)(D); 264.228(a)(2)(iii)(D)				Please provide an answer in the Submitted column!
1395	VII.A.6.g.	Ensure that permeability is less than or equal to bottom liner system or natural sub-soil present	335.169(a)(2)(E); 264.228(a)(2)(iii)(E)				Please provide an answer in the Submitted column!
1396	VII.A.6.h.	For clean closure, the closure plan must identify 350.32 Remedy Standard A	350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1397	VII.A.6.i.	If wastes are left in place, applicant must comply with closure requirements for landfills per 264.310 and post closure per 264.117 through 264.120. The closure and post-closure plan must include:	335.169(b); 264.228(b); 350.33 Remedy Standard B.				Please provide an answer in the Submitted column!
1398	VII.A.6.i.1.	Maintaining the integrity and effectiveness of final cover including repairs of the cap	335.169(b)(1); 264.228(b)(1)				Please provide an answer in the Submitted column!
1399	VII.A.6.i.2.	Maintenance and monitoring of leak detection system	335.169(b)(2); 264.228(b)(2)				Please provide an answer in the Submitted column!
1400	VII.A.6.i.3.	Maintenance and monitoring of groundwater monitoring system	335.169(b)(3); 264.228(b)(3)				Please provide an answer in the Submitted column!
1401	VII.A.6.i.4.	Prevention of erosion from run-on and run-off	335.169(b)(4); 264.228(b)(4)				Please provide an answer in the Submitted column!
1402	VII.A.6.j.	If intend to remove wastes but do not have constructed liner system, contingent post-closure plan per 264.118 and cost estimates per 264.142 & 264.144 must be included	335.169(c)				Please provide an answer in the Submitted column!

1403	VII.A.*7.*	Closure of Waste Piles: Plan must ensure that closure will:	264.258				Please provide an answer in the Submitted column!
1404	VII.A.*7.a.*	Remove or decontaminate all wastes and contaminated materials	264.258(a); 350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1405	VII.A.*7.b.*	If not all contaminated materials can be removed, applicant must close the waste pile as a landfill, and provide post-closure care plan per 264.310	264.258(b); 350.33 Remedy Standard B				Please provide an answer in the Submitted column!
1406	VII.A.*7.c.*	If intend to remove wastes but do not have constructed liner system, contingent post-closure plan per 264.118 and cost estimates per 264.142 & 264.144 must be included	264.258(c)				Please provide an answer in the Submitted column!
1407	VII.A.*8.*	Closure of Land Treatment Units: Plan must ensure that:	335.172; 264.280				Please provide an answer in the Submitted column!
1408	VII.A.*8.a.*	During closure of land treatment facilities the owner or operator must comply with the following:					Please provide an answer in the Submitted column!
1409	VII.A.*8.a.1.*	Continue operations necessary to maximize degradation, transformation, or immobilization of hazardous constituents	335.172(a)(1); 264.280(a)(1)				Please provide an answer in the Submitted column!
1410	VII.A.*8.a.2.*	Minimize run-off of hazardous constituents	335.172(a)(2); 264.280(a)(2)				Please provide an answer in the Submitted column!
1411	VII.A.*8.a.3.*	Maintain run-on control system	335.172(a)(3); 264.280(a)(3)				Please provide an answer in the Submitted column!
1412	VII.A.*8.a.4.*	Maintain run-off management system	335.172(a)(4); 264.280(a)(4)				Please provide an answer in the Submitted column!
1413	VII.A.*8.a.5.*	Control wind dispersal of hazardous waste	335.172(a)(5); 264.280(a)(5)				Please provide an answer in the Submitted column!
1414	VII.A.*8.a.6.*	Continue to comply with prohibitions and controls concerning food chain crops per 264.276	335.172(a)(6); 264.280(a)(6)				Please provide an answer in the Submitted column!
1415	VII.A.*8.a.7.*	Continue unsaturated zone monitoring per 264.278	335.172(a)(7); 264.280(a)(7)				Please provide an answer in the Submitted column!
1416	VII.A.*8.a.8.*	Maintain vegetative cover	335.172(a)(8); 264.280(a)(8)				Please provide an answer in the Submitted column!
1417	VII.A.*8.b.*	Submit closure certification per 264.115 signed by an independent licensed Geoscientist or PE	335.172(b); 264.280(b)				Please provide an answer in the Submitted column!
1418	VII.A.*9.*	Closure of Landfills: plan must ensure that:	335.174; 264.310				Please provide an answer in the Submitted column!
1419	VII.A.*9.a.*	Plans and engineering report that describe the final cover components in detail. Cover installation and construction quality assurance procedures should be thoroughly described	EPA Publication 530-SW-85-014; TCEQ Technical Guidance No. 3				Please provide an answer in the Submitted column!
1420	VII.A.*9.b.*	Adequate cover, designed and constructed to:					Please provide an answer in the Submitted column!
1421	VII.A.*9.b.1.*	Provide long-term minimization of migration of liquids through the closed landfill	335.174(a)(1); 264.310(a)(1)				Please provide an answer in the Submitted column!
1422	VII.A.*9.b.2.*	Function with minimum maintenance	335.174(a)(2); 264.310(a)(2)				Please provide an answer in the Submitted column!
1423	VII.A.*9.b.3.*	Promote drainage and minimize erosion or abrasion of the cover	335.174(a)(3); 264.310(a)(3)				Please provide an answer in the Submitted column!
1424	VII.A.*9.b.4.*	Accommodate settling and subsidence without loss of integrity	335.174(a)(4); 264.310(a)(4)				Please provide an answer in the Submitted column!
1425	VII.A.*9.b.5.*	Ensure that the permeability is less than or equal to bottom liner or natural subsoils, if unlined	335.174(a)(5); 264.310(a)(5)				Please provide an answer in the Submitted column!
1426	VII.A.*9.c.*	For waste left in place, the closure plan must comply with applicable requirements of 30 TAC 350.33 Remedy Standard B	350.33 Remedy Standard B.				Please provide an answer in the Submitted column!
1427	VII.A.*10.*	Closure of Incinerators; plan must ensure that:	264.351				Please provide an answer in the Submitted column!
1428	VII.A.*10.a.*	All hazardous wastes and waste residues including ash, scrubber waters and scrubber sludges, and any structures or operating equipment such as pumps and valves, etc. must be removed from the incinerator site	264.351; 350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1429	VII.A.*11.*	Closure of Drip Pads; plan must demonstrate that closure will:	264.575				Please provide an answer in the Submitted column!
1430	VII.A.*11.a.*	Remove or decontaminate all waste residues, contaminated containment system components (pads, liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leakage	264.575(a); 350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1431	VII.A.*11.b.*	If not all subsoils can be decontaminated, post-closure care must be submitted per 264.310	264.575(b); 350.33 Remedy Standard B				Please provide an answer in the Submitted column!
1432	VII.A.*11.c.*	If unit has no liner system, contingent post-closure plan per 264.118 and cost estimate per 264.142 & 264.144 must be submitted	264.575(c)				Please provide an answer in the Submitted column!

1433	VII.A.*12.*	Closure of Miscellaneous Units:	335.152(a)(5)				Please provide an answer in the Submitted column!
1434	VII.A.*12.a.*	Closure plan must show that all hazardous waste and hazardous waste residues will be removed and decontaminated from the treatment process or discharge equipment process and discharge equipment structures	350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1435	VII.A.*12.b.*	If any wastes, waste residues or contaminated materials or soils will remain after closure, provide plans for closing the miscellaneous unit as a landfill in accordance with 264.310 and 350.33 Remedy Standard B that:	350.33 Remedy Standard B.				Please provide an answer in the Submitted column!
1436	VII.A.*12.b.1.*	Minimizes need for further maintenance	264.111(a)				Please provide an answer in the Submitted column!
1437	VII.A.*12.b.2.*	Provides protection of human health and the environment, prevents escape of hazardous waste, constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or atmosphere	264.111(b)				Please provide an answer in the Submitted column!
1438	VII.A.*12.b.3.*	Complies with any applicable requirements of 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601-603, and 264.1102	264.111(c)				Please provide an answer in the Submitted column!
1439	VII.A.*13.*	Closure of Containment Buildings: plan must ensure that:	264.1102				Please provide an answer in the Submitted column!
1440	VII.A.*13.a.*	Remove or decontaminate all waste residues, contaminated system components (liners, etc.), contaminated subsoils, structures and equipment.	264.1102(a); 350.32 Remedy Standard A				Please provide an answer in the Submitted column!
1441	VII.A.*13.b.*	If not all contaminated subsoils can be removed the operator must close the facility and perform post-closure care in accordance with closure and post-closure requirements that apply to landfills (264.310) and 350.33 Remedy Standard B	264.1102(b); 350.33 Remedy Standard B.				Please provide an answer in the Submitted column!
1442	VII.A.*14.*	Closure of Boilers and Industrial Furnaces (BIF): plan must ensure that closure will:	266.102(a)(2)(vii); 264.112(b)				Please provide an answer in the Submitted column!
1443	VII.A.*14.a.*	Remove all hazardous wastes, residues (including ash, scrubber waters, scrubber sludges) from the BIF including ductwork, piping, air pollution control equipment, sumps, and any other structures or operating equipment such as pumps, valves, etc. that have come in contact with hazardous wastes	350.32 Remedy Standard A.				Please provide an answer in the Submitted column!
1444	VII.B.	Closure Cost Estimate (including contingent closure)	TCEQ Technical Guidance No.10; 335.178; 264.142				
1445	VII.B.~.*a.*	Provide detailed cost estimate of closing the facility					Please provide an answer in the Submitted column!
1446	VII.B.~.*b.*	Provide cost of closure at the most expensive point in the facilities operating life	264.142(a)(1)				Please provide an answer in the Submitted column!
1447	VII.B.1.	If closure costs based on contractor bids; provide a copy of the bid specification and each contractor's response					Please provide an answer in the Submitted column!
1448	VII.B.2.	Complete and submit Table VII.B - Unit Closure Cost Estimate in hard copy and editable electronic format Closure costs based on detailed analysis: cost of each item, equipment, third party labor and supervision, transportation, and analytical costs, etc.					Please provide an answer in the Submitted column!
1449	VII.B.3.	Provide closure costs based on off-site shipment and disposal, including:	335.178				Please provide an answer in the Submitted column!
1450	VII.B.3.*a.*	Maximum inventory of wastes	335.178(1)				Please provide an answer in the Submitted column!
1451	VII.B.3.*b.*	Wastes generated during closure	335.178(2)				Please provide an answer in the Submitted column!
1452	VII.B.3.*c.*	Contaminated storm water	335.178(3)				Please provide an answer in the Submitted column!
1453	VII.B.3.*d.*	Leachate	335.178(4)				Please provide an answer in the Submitted column!
1454	VII.B.4.	Provide cost for closure under contingent closure plan required for each surface impoundments, waste pile or tank system					Please provide an answer in the Submitted column!
1468	VII.C.1.*i.*	Additional Post-closure for Land Treatment:	264.280(c)				Please provide an answer in the Submitted column!
1469	VII.C.1.*i.1.*	During post-closure of land treatment facilities, the owner or operator must comply with the following:					Please provide an answer in the Submitted column!
1470	VII.C.1.*i.1.a.*	Continue all operations (including pH control)	264.280(c)(1)				Please provide an answer in the Submitted column!
1471	VII.C.1.*i.1.b.*	Maintain vegetative cover	264.280(c)(2)				Please provide an answer in the Submitted column!
1472	VII.C.1.*i.1.c.*	Maintain run-on control system	264.280(c)(3)				Please provide an answer in the Submitted column!
1473	VII.C.1.*i.1.d.*	Maintain run-off management system	264.280(c)(4)				Please provide an answer in the Submitted column!
1474	VII.C.1.*i.1.e.*	Control wind dispersal of waste;	264.280(c)(5)				Please provide an answer in the Submitted column!
1475	VII.C.1.*i.1.f.*	Continue to comply with food-chain crops prohibitions	264.280(c)(6)				Please provide an answer in the Submitted column!
1476	VII.C.1.*i.1.g.*	Continue UZM and GW monitoring	264.280(c)(7)				Please provide an answer in the Submitted column!
1477	VII.C.1.*j.*	Additional Post-closure for Miscellaneous Units	270.14(b)(13)				Please provide an answer in the Submitted column!

1483	VII.D.	Post-closure cost estimate (except state and federal facilities)					
1484	VII.D.1.*a.*	Complete and submit Table VII.D. - Unit Post-Closure Cost Estimate in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1485	VII.D.1.*b.*	Provide detailed cost estimate of the annual cost of monitoring and maintenance	TCEQ Technical Guidance No.10				Please provide an answer in the Submitted column!
1486	VII.D.2.	Provide post-closure cost estimate, including:					Please provide an answer in the Submitted column!
1487	VII.D.2.*a.*	Assume costs of hiring third parties for all operations	264.144(a)(1)				Please provide an answer in the Submitted column!
1488	VII.D.3.	Total annual cost of post-closure care and contingent post-closure care multiplied by 30 years	264.144(a)(2)				Please provide an answer in the Submitted column!
1489	VII.E.	Closure and Post-closure Cost Summary					
1490	VII.E.*1.*	Complete and submit Table VII.E.1. - Permitted Unit Closure Cost Summary in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1491	VII.E.*2.*	Complete and Submit Table VII.E.2. - Permitted Unit Post-Closure Cost Summary in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1492	VIII.	Financial Assurance					
1493	VIII.~.*1.*	Submit copies of the Financial Assurance Information to the Revenue Operation Section, Financial Administration Division, and in the Part B permit application.					Please provide an answer in the Submitted column!
1494	VIII.~.*2.*	Ensure an authorized signatory has signed the financial assurance documents and included the certification statement	305.44				Please provide an answer in the Submitted column!
1495	VIII.A.	Financial Assurance Information Requirements for all Applicants:	335.179				
1496	VIII.A.~.	Provide statement to demonstrate that the applicant has sufficient financial resources to operate and close the facility; and information concerning how they intend to obtain financing for construction	305.50(a)(4)				Please provide an answer in the Submitted column!
1497	VIII.A.1.	FINANCIAL ASSURANCE FOR CLOSURE	30 TAC Chapter 37 Subchapter P; 264.143				
1498	VIII.A.1.*a.*	Submit any of the following financial assurance mechanisms:					Please provide an answer in the Submitted column!
1499	VIII.A.1.*a.1.*	Closure trust fund	37.6021(b)(1); 264.143(a)				Please provide an answer in the Submitted column!
1500	VIII.A.1.*a.2.*	Surety bond guaranteeing payment into closure trust fund	37.6021(b)(2); 264.143(b)				Please provide an answer in the Submitted column!
1501	VIII.A.1.*a.3.*	Surety bond guaranteeing performance of closure	37.6021(b)(3); 264.143(c)				Please provide an answer in the Submitted column!
1502	VIII.A.1.*a.4.*	Irrevocable letter of credit	37.6021(b)(4); 264.143(d)				Please provide an answer in the Submitted column!
1503	VIII.A.1.*a.5.*	Closure insurance	37.6021(b)(5); 264.143(e)				Please provide an answer in the Submitted column!
1504	VIII.A.1.*a.6.*	Financial test and corporate guarantee for closure	37.6021(b)(6-7); 264.143(f)				Please provide an answer in the Submitted column!
1505	VIII.A.1.*a.7.*	Use of multiple financial mechanisms	264.143(g)				Please provide an answer in the Submitted column!
1506	VIII.A.1.*a.8.*	Use of financial mechanism for multiple facilities	37.51 264.143(h)				Please provide an answer in the Submitted column!
1507	VIII.A.2.	FINANCIAL ASSURANCE FOR POST-CLOSURE CARE	30 TAC Chapter 37 Subchapter P; 264.145				
1508	VIII.A.2.*a.*	Submit any of the following financial assurance mechanisms:					Please provide an answer in the Submitted column!
1509	VIII.A.2.*a.1.*	Post-closure trust fund	37.6021(b)(1); 264.145(a)				Please provide an answer in the Submitted column!
1510	VIII.A.2.a.2.	Surety bond guaranteeing payment into post-closure fund	37.6021(b)(2); 264.145(b)				Please provide an answer in the Submitted column!
1511	VIII.A.2.*a.3.*	Surety bond guaranteeing performance of post-closure care	37.6021(b)(3); 264.145(c)				Please provide an answer in the Submitted column!
1512	VIII.A.2.*a.4.*	Post-closure letter of credit	37.6021(b)(4); 264.145(d)				Please provide an answer in the Submitted column!
1513	VIII.A.2.*a.5.*	Post-closure insurance	37.6021(b)(5); 264.145(e)				Please provide an answer in the Submitted column!
1514	VIII.A.2.*a.6.*	Financial test and corporate guarantee for post-closure	37.6021(b)(6-7); 264.145(f)				Please provide an answer in the Submitted column!
1515	VIII.A.2.*a.7.*	Use of multiple financial mechanisms	264.145(g)				Please provide an answer in the Submitted column!
1516	VIII.A.2.*a.8.*	Use of financial mechanism for multiple facilities	37.51; 264.145(h)				Please provide an answer in the Submitted column!
1517	VIII.A.3.	FINANCIAL ASSURANCE FOR CORRECTIVE ACTION	30 TAC Chapter 37 Subchapter P				
1518	VIII.A.3.*a.*	Submit any of the following financial assurance mechanisms:					Please provide an answer in the Submitted column!
1519	VIII.A.3.*a.1.*	Corrective action trust fund	37.6021(b)(1)				Please provide an answer in the Submitted column!
1520	VIII.A.3.*a.2.*	Surety bond guaranteeing payment into corrective action fund	37.6021(b)(2)				Please provide an answer in the Submitted column!
1521	VIII.A.3.*a.3.*	Corrective action letter of credit	37.6021(b)(4)				Please provide an answer in the Submitted column!
1522	VIII.A.3.*a.4.*	Corrective action insurance;	37.6021(b)(5)				Please provide an answer in the Submitted column!
1523	VIII.A.3.*a.5.*	Financial test and corporate guarantee for corrective action	37.6021(b)(6-7)				Please provide an answer in the Submitted column!
1524	VIII.A.3.*a.6.*	Use of financial mechanism of for multiple facilities	37.51				Please provide an answer in the Submitted column!
1525	VIII.A.4.	LIABILITY REQUIREMENTS: (Not required for post-closure care) if applicable:	30 TAC Chapter 37 Subchapter P; 264.147				
1526	VIII.A.4.*a.*	Coverage for sudden accidental occurrences (required)	37.6031(b); 264.147(a)				Please provide an answer in the Submitted column!

1527	VIII.A.4.*b.*	Coverage for non-sudden accidental occurrences (required of land-based units)	37.6031(c); 264.147(b)				Please provide an answer in the Submitted column!
1528	VIII.A.4.*c.*	Requests for variance	264.147(c)				Please provide an answer in the Submitted column!
1529	VIII.A.4.*d.*	Adjustments by the Regional Administrator	37.411; 264.147(d)				Please provide an answer in the Submitted column!
1530	VIII.A.4.*e.*	Period of coverage	264.147(e)				Please provide an answer in the Submitted column!
1531	VIII.A.4.*f.*	Financial test	37.541; 264.147(f)				Please provide an answer in the Submitted column!
1532	VIII.A.4.*g.*	Guarantee for liability coverage	37.551; 264.147(g)				Please provide an answer in the Submitted column!
1533	VIII.A.4.*h.*	Letter of credit	37.521; 264.147(h)				Please provide an answer in the Submitted column!
1534	VIII.A.4.*i.*	Surety bond	37.511; 264.147(i)				Please provide an answer in the Submitted column!
1535	VIII.A.4.*j.*	Trust fund	37.501; 264.147(j)				Please provide an answer in the Submitted column!
1536	VIII.A.4.*k.*	Endorsement or Certification: Submit the original Hazardous Waste Facility Endorsement wording pursuant to 264.151(i)(3), or Certificate of Liability wording pursuant to 264.151(j)(4)	30 TAC Chapter 37 Subchapter D; 264.147(k)				Please provide an answer in the Submitted column!
1537	VIII.B.	Applicant Financial Disclosure Statements for a new permit, permit amendment, permit modification, or permit renewal	305.50(a)(4)				
1538	VIII.B.~.	Refer to the “Supplemental Technical Information Applications Subject to Financial Capabilities Requirements” included in the Part B Application Section VIII.B.					
1539	VIII.B.1.	Provide the information required by 30 TAC 305.50(a)(4)					Please provide an answer in the Submitted column!
1540	VIII.B.2.	Complete and submit Table VIII.B. - Estimated Capital Cost in hard copy and electronically (editable) as represented (Applicable only if facility is requesting capacity expansion, or new construction)					Please provide an answer in the Submitted column!
1541	VIII.B.3.	For a new commercial hazardous waste management facility, submit a written statement signed by an authorized signatory explaining how the applicant intends to provide emergency response financial assurance	305.44; 305.50(a)(12)(C) or (D)				Please provide an answer in the Submitted column!
1542	VIII.B.4.	For renewal application with no capacity expansion, complete and submit the Financial Disclosure Letter					Please provide an answer in the Submitted column!
1561	X.	Air Emissions Standards					
1562	X.A.	Provide a report on Process Vents, if applicable:	335.152(a)(17); 264 subpart AA; 270.24				Please provide an answer in the Submitted column!
1563	X.A.1.	Complete and submit Table X.A. - Process Vents in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1564	X.A.2.	Submit the certification for organic emissions, signed and dated					Please provide an answer in the Submitted column!
1565	X.B.	Provide a report on Equipment Leaks, if applicable:	335.152(a)(18); 264 subpart BB; 270.25				Please provide an answer in the Submitted column!
1566	X.B.1.	Complete and submit Table X.B. - Equipment Leaks in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1567	X.B.2.	Submit the certification for equipment, signed and dated					Please provide an answer in the Submitted column!
1568	X.C.	Provide a report on Tanks, Surface Impoundments and Containers, if applicable:	335.152(a)(19); 264 subpart CC; 270.27				Please provide an answer in the Submitted column!
1569	X.C.1.	Complete and submit Table X.C. - Tanks, Surface Impoundments, and Containers Subject to Air Emission Controls in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1570	X.C.2.	Complete submit the Floating Roof Cover certification, signed and dated, for Tanks					Please provide an answer in the Submitted column!
1571	X.C.3.	Complete and submit the Floating Membrane Cover certification, signed and dated, for Surface Impoundments					Please provide an answer in the Submitted column!
1572	X.C.4.	Complete and submit the Container certification, signed and dated					Please provide an answer in the Submitted column!
1573	X.C.5.	Complete and submit the Control Device certification, signed and dated					Please provide an answer in the Submitted column!
1574	X.D.	For "One-Stop" Permits only, Provide TCEQ Office of Air Quality information:					Please provide an answer in the Submitted column!
1575	X.D.1.	Area map to scale					Please provide an answer in the Submitted column!
1576	X.D.2.	Plot plan to scale					Please provide an answer in the Submitted column!
1577	X.D.3.	Complete and submit Table X.D.1(a). - Emission Point Parameters in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1578	X.D.4.	Process description, operating schedule and flow chart					Please provide an answer in the Submitted column!
1579	X.D.5.	Design specifications using OAQ table					Please provide an answer in the Submitted column!
1580	X.D.6.	VOC concentrations in water, sludge, or soil					Please provide an answer in the Submitted column!

1581	X.D.7.	Exhaust stack or emission point parameters					Please provide an answer in the Submitted column!
1582	X.D.8.	BACT documentation for new or modified facilities					Please provide an answer in the Submitted column!
1583	X.D.9.	Documentation of compliance with NSPS and NESHAPS					Please provide an answer in the Submitted column!
1584	X.D.10.	Documentation as to whether a permit is required for new source review by Part C or D of Title I of Clean Air Act					Please provide an answer in the Submitted column!
1585	X.D.11.	Demonstration of emission control reliability					Please provide an answer in the Submitted column!
1586	X.D.12.	Results of atmospheric dispersion modeling					Please provide an answer in the Submitted column!
1587	X.D.13.	Complete and submit Table X.D.7. - For Fugitive Sources for storage tanks in hard copy and editable electronic format					Please provide an answer in the Submitted column!
1588	X.D.14.	Statement addressing OAQ regulations					Please provide an answer in the Submitted column!
1589	X.D.15.	All methods of calculating emissions referenced or justified					Please provide an answer in the Submitted column!
1590	XI.	Compliance Plan					

TABLE OF CONTENTS

Note: The table of conte
beginning of the form.

Table of Contents

Texas Commission on Environmental Quality Permit Application for Industrial and Hazardous Waste Storage/Processing/Disposal Facility with Compliance Plan

Instructions:
Open the File Attachments List in the Navigation Page to view all tables and attachments. (Or, click here to open List of Attachments Navigation Pane). Word versions of the tables are included in the Attachment Tab. Links below will only open the PDF versions of the tables. Select the applicable tables for your application and complete.

TCEQ Core Data Form (TCEQ-10400) [External weblink to download form]

Signature Page for Application

Table I - General Information

Table I.1 - Description of Proposed Application Changes

Adjacent Landowners List and Map (Go to instructions on page 11)

Table III.D - Inspection Schedule

Table IV.B. – Wastes Managed In Permitted Units

Table IV.D. – Waste Analysis Plan

Table V.A. - Facility Waste Management Handling Units

Table V.G.1. - Landfills

Table V.G.3. - Landfills Liner System

Table V.G.4. - Landfills Leachate Collection System

Table V.G.5. - Landfill Material and Construction Specifications

Table VI.A.1. - Major Geologic Formations

Table VI.A.4. - Waste Management Area Subsurface Conditions

Table VIII.B. - Estimated Capital Costs

Table XII.A. – Hazardous Waste Units (For Application Fee Calculations)

Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

Appendices List - NOTE: Provide all Part B responsive information, (e.g. engineering reports, attachments, drawings, tables, maps, etc.) in an Appendix for application. When preparing the physical format review the Format of Hazardous Waste permit Application and Instructions.

Appendix I - General Information

Appendix II - Facility Siting Information

Appendix III - Facility Management

Appendix III.A. - Compliance History a

Appendix III.C - Facility Security

Appendix III.D. - Inspection Schedule

Appendix IV - Waste and Waste Analysis

Appendix V - Engineering Reports

Appendix V.A. - General Engineering Report

Appendix V.G. - Landfills Engineering Report

Appendix VI - Geology Report

Appendix VI.A - Geology and Topography Report

Appendix VI.B. - Facility Groundwater

Appendix VI.C. - Exemption from Grou

Appendix VII.C. - Post-Closure Plan

Appendix VII.D. - Post-Closure Cost Estimate

Appendix VII.E. - Closure and Post-Closure Cost Summary Tables
Appendix VIII - Financial Assurance Infomation
Appendix IX - Releases from Solid Waste Units and Corrective Action
Appendix XII - Hazardous Waste Permit Application Fee Tables

SECTION I – GENERAL INFORMATION

Texas Commission on Environmental Quality
Industrial & Hazardous Waste Part B Permit Application

I. General Information

Provide all Part B responsive information in Appendix I. When preparing the physical format organize your submittal using the [Format of Hazardous Waste permit Application and Instructions](#).

Provide responsive information in Appendix I.

a. Complete Table I - General Information

b. For all incoming New, Renewal, Class 3 Permit Modification, and Major Amendment applications, the TCEQ requires that a Core Data Form (CDF) be submitted whether or not a change has occurred in the previously submitted form.

   For Minor Amendment, Class 1, Class 1[1], and Class 2 Permit Modification applications, the TCEQ requires that the CDF be only submitted if a change in any information in the previously submitted form has occurred at the time of the application submittal.
   For more information regarding the Core Data Form, call (512) 239 1575 or go to the TCEQ Web site at https://www.tceq.texas.gov/permitting/central_registry/guidance.html

c. Signature on Application

   It is the duty of the operator to submit an application for a permit. The person who signs the application form will often be the operator himself; when another person signs on behalf of the applicant, his title or relationship to the applicant will be shown. In all cases, the person signing the form must be authorized to do so by the applicant. An application submitted by a corporation must be signed by a responsible corporate officer such as a president, secretary, treasurer, vice president, or by his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the activity described in the form originates. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application must be signed by a principal executive officer, a ranking elected official, or another duly authorized employee. A person signing an application on behalf of an applicant must provide notarized proof of authorization.

d. Complete Interim Status Land Disposal Unit(s) Certification, as applicable

e. Submit List and Map of Adjacent Landowners List, as applicable.

TABLE I – GENERAL INFORMATION

Table I: General Information

A. Applicant: Facility Operator (or Facility Owner & Operator, if same)

Name[1]	Texas Department of Criminal Justice - Ellis Unit
Address	1697 FM 980
City, State	Huntsville, Texas
Zip Code	77343
Telephone Number	936-437-7247
Alternate Telephone Number	
Fax:	
TCEQ Solid Waste Registration No.	71331
EPA I.D. No.	TXD980747893
Permit No.	50361
County	Walker
Regulated Entity Name	TDCJ Ellis Unit
Regulated Entity Reference Number (RN)	RN102315199
Customer Name	Texas Department of Criminal Justice
Customer Reference Number:	CN601550650
Charter Number[2]	Not Applicable
Previous or Former Names of the Facility (if applicable)	Not Applicable

B. Facility Owner: Identify the Facility Owner if different than the Facility Operator[3]

☒ Same as Facility Operator?

Name	Texas Department of Criminal Justice - Ellis Unit
Address	1697 FM 980
City, State	Huntsville, Texas
Zip Code	77343
Telephone Number	936-437-7247
Alternate Telephone Number	
Fax:	

C. Facility Contact

1. Persons or firms who will act as primary contact:

Name, Title:	Jason Pierce
Address	P.O. Box 4011
City, State:	Huntsville, Texas
Zip Code	77342-4011
Telephone Number	936-437-7247
Alternate Telephone Number	
E-mail	[redacted]
Fax:	325-223-0294

Persons or firms who will act as primary contact (if more than one):

Name, Title:	
Address	
City, State:	
Zip Code	
Telephone Number	
Alternate Telephone Number	
E-mail	
Fax:	

2. Agent in Service or Agent of Service (if you are an out-of-state company)[4]:

Name, Title:	Not Applicable
Address	
City, State:	
Zip Code	

3. Individual responsible for causing notice to be published:

Name:	Jason Pierce (same as above)
Address	
City, State:	
Zip Code	
Telephone Number	
Alternate Telephone Number	
E-mail	
Fax:	

4. Public place in county where application will be made available[5]:

Name	Huntsville Public Library
Address	1219 13th Street
City, State	Huntsville, Texas

Zip Code 77340

D. Application Type and Facility Status

1. Application Type

☐ Permit
☐ New
☐ Interim status
☒ Renewal
☐ RD&D
☐ Compliance Plan

☒ Amendment
☒ Major
☐ Minor

☐ Modification
☐ Class 3
☐ Class 2
☐ Class 1[1]
☐ Class 1

2. Part of a Consolidated Permit Processing request? [30 TAC Chapter 33] No

3. Does the application contain confidential material?[6] No

4. Facility Status. Check all that apply

☐ Proposed

☒ Existing
☒ On-Site
☐ Off-Site
☐ Commercial
☐ Recycle
☐ Land Disposal
☐ Areal or capacity expansion
☐ Compliance plan

5. Is the facility within the Coastal Management Program boundary? **No**

6. Description of Application Changes

Complete Table I.1 - Description of Proposed Application Changes.

Note: List all changes requested in Table I.1. Unlisted requests risk remaining unaddressed or possibly denied if brought to the permit application reviewer's attention at a later time.

7. Total acreage of the facility being permitted: **11427**

8. Identify the name of the drainage basin and segment where the facility is located

River Segment	Segment 803
River Basin	Trinity River Basin

E. Facility Siting Summary:

Is the facility located or proposed to be located:

1.	Within a 100-year floodplain?	Yes
2.	in wetlands?	No
3.	In the critical habitat of an endangered species of plant or animal?	No
4.	On the recharge zone of a sole-source aquifer?	No
5.	In an area overlying a regional aquifer?	No
6.	Within 0.5 mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park?[7] [30 TAC 335.202] If Yes: the TCEQ shall not issue a permit for this facility.	No
7.	In an area in which the governing body of the county or municipality has prohibited the processing or disposal of municipal hazardous waste or industrial solid waste? If Yes: provide a copy of the ordinance or order.	No

F. Wastewater and Stormwater Disposition

1. Is the disposal of any waste to be accomplished by a waste disposal well at this facility? No

If Yes: List WDW Permit No(s):

2. Will any point source discharge of effluent or rainfall runoff occur as a result of the proposed activities? No

3. If Yes, is this discharge regulated by a TPDES or TCEQ permit?

☐ Yes

TCEQ Permit No.

TPDES Permit No.

☐ No

Date TCEQ discharge permit application filed

Date TPDES discharge permit application filed:

G. Information Required to Provide Notice

State Officials List [30 TAC 39]

State Senator	THE HONORABLE CHARLES SCHWERTNER TEXAS SENATE DISTRICT ROOM 3E.10 TEXAS STATE CAPITOL (512) 463-0105 [redacted]
State Representative	THE HONORABLE KYLE KACAL TEXAS HOUSE OF REPRESENTATIVES DISTRICT ROOM E2.810 TEXAS STATE CAPITOL (512) 463-0412 [redacted]
Local Officials List [30 TAC 39]	
Mayor	CITY OF HUNTSVILLE MAYOR RUSSELL HUMPHREY 1212 AVENUE M HUNTSVILLE TX 77340 4608 (936) 291-5413 [redacted]
Local Health Authority	N/A
County Judge	WALKER COUNTY JUDGE Colt Christian COUNTY COURTHOUSE, Room 204 1100 UNIVERSITY AVE HUNTSVILLE TX 77340 4639 (936) 436-4910 [redacted]
County Health Authority	Public Health Region 6/5 South – Houston; Carlos Plasencia, MD, MSPH, Regional Medical Director; Regional Headquarters: 5425 Polk, Suite J, Houston, TX 77023, Mail Code 1906 (713) 767-3000 [redacted] No email address available
Based on the questions in the Bilingual Notice Instructions for this form, are you required to make alternate (Bilingual) notice for this application?	Yes
Bilingual Language(s):	Spanish
TCEQ Core Data Form Submitted?(see Section I Instructions, Item b.)	Yes

Has any information changed on the TCEQ Core Data Form since the last submittal?	Yes
Signature on Application Submitted? (see Section I Instructions, Item c)	Yes

1. Individual, Corporation, or Other Legal Entity Name - must match the Secretary of State's database records for the Facility)
2. If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.
3. The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on Part A of this application [Section 361.087, Texas Health and Safety Code].
4. If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.
5. For applications for new permits, renewals, major amendments and Class 3 modifications a copy of the administratively complete application must be made available at a public place in the county where the facility is, or will be, located for review and copying by the public. Identify the public place in the county (e.g., public library, county court house, city hall), including the address, where the application will be made available for review and copying by the public.
6. For confidential information cross-reference the confidential material throughout the application to Section XIII: Confidential Material, and submit as a separate Section XIII document or binder conspicuously marked " CONFIDENTIAL".
7. Use only for a new commercial hazardous waste management facility or areal expansion of an existing commercial hazardous waste management facility or unit of that facility as defined in 30 TAC 335.202

TABLE I.1

DESCRIPTION OF PROPOSED APPLICATION CHANGES

Permit No. 50361

Permittee: TDCJ Ellis Unit

Table I.1-Description of Proposed Application Changes

Permit/Compliance Plan Application Appendix/Section	Brief Description of Proposed Change	Modification or Amendment Type	Supporting Regulatory Citation
Table VI.3.C	Updating concentration limits, groundwater sampling frequency, and reduction in constituents of concern (COCs) following statistical analysis	2	30 TAC 305.69(k)(C)(5)(b)
Appendix VII.C	Removal of annual benchmark surveying requirement	2	30 TAC 305.69(k)(E)(5)

CORE DATA FORM

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)*

☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 601550650		RN 102315199

SECTION II: Customer Information

4. General Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*

If new Customer, enter previous Customer below:

TEXAS DEPARTMENT OF CRIMINAL JUSTICE

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
		74-6001431	

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☒ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?

☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator ☐ Other:

☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:

TDCJ FACILITIES DIVISION ATTN: ENVIRONMENTAL DEPARTMENT

PO BOX 4011

City HUNTSVILLE **State** TX **ZIP** 77342 **ZIP + 4** 4011

16. Country Mailing Information *(if outside USA)*

17. E-Mail Address *(if applicable)*

[redacted]

18. Telephone Number

19. Extension or Code

20. Fax Number *(if applicable)*

(936) 437-7247		(325) 223-0294

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

TDCJ ELLIS UNIT

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	1697 FM 980 RD						
	City	HUNTSVILLE	**State**	TX	**ZIP**	77343	**ZIP + 4**
24. County	WALKER						

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	Take exit 116 off IH 45 and go north on State Road 19 approximately 13 miles to its intersection with FM 980. Turn left onto FM 980 and proceed approximately 8 miles to the main Ellis Unit gate.

26. Nearest City	**State**	**Nearest ZIP Code**
HUNTSVILLE	TX	77343

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	53	6.36	95	27	19.13

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
9223		922140	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

CORRECTIONAL FACILITY

34. Mailing Address:	TDCJ FACILITIES DIVISION ATTN: ENVIRONMENTAL DEPARTMENT							
	PO BOX 4011							
	City	HUNTSVILLE	**State**	TX	**ZIP**	77342	**ZIP + 4**	4011
35. E-Mail Address:	tdcjenv@tdcj.texas.gov							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(936) 437-7247		(325) 223-0294

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	SCOTT LAWSON	**41. Title:**	ENV PROTECTION SPECIALIST III
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(936) 437-7247		( ) -	[redacted]

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	TEXAS DEPARTMENT OF CRIMINAL JUSTICE	**Job Title:**	DIRECTOR, FACILITIES DIVISION
Name *(In Print):*	RON HUDSON	**Phone:**	(936) 437- 7200
Signature:		**Date:**	7/23/24

PART B SIGNATURE PAGE

Signature Page

I, Ron Hudson, Director, Facilites Division,

(Operator) *(Title)*

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:________________ Date: 7/23/24

To be completed by the Operator if the application is signed by an Authorized Representative for the Operator

I,________________, hereby designate ________________

[Print or Type Name] *[Print or Type Name]*

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

____

Printed or Typed Name of Operator or Principal Executive Officer

____

Signature

SUBSCRIBED AND SWORN to before me by the said

On this 23 day of July, 2024

My commission expires on the 21 day of January, 2025

Notary Public in and for Walker County, Texas

*[**Note**: Application Must Bear Signature & Seal of Notary Public]*

Lavonna Powers

LAVONNA F. POWERS
Notary Public, State of Texas
Comm. Expires 01-21-2025
Notary ID 5233268

Interim Status Land Disposal Unit(s) Certification

For all land disposal units managing wastes which are newly listed or identified as hazardous wastes, the following certification must be executed by or on the date 12 months after the effective date of the rule identifying or listing the waste as hazardous. If the operator fails to certify compliance with these requirements, the operator shall lose authority to operate under interim status. [40 CFR 270.73(d)]

I, Ron Hudson, Director, Facilities Division

(operator) *(title)*

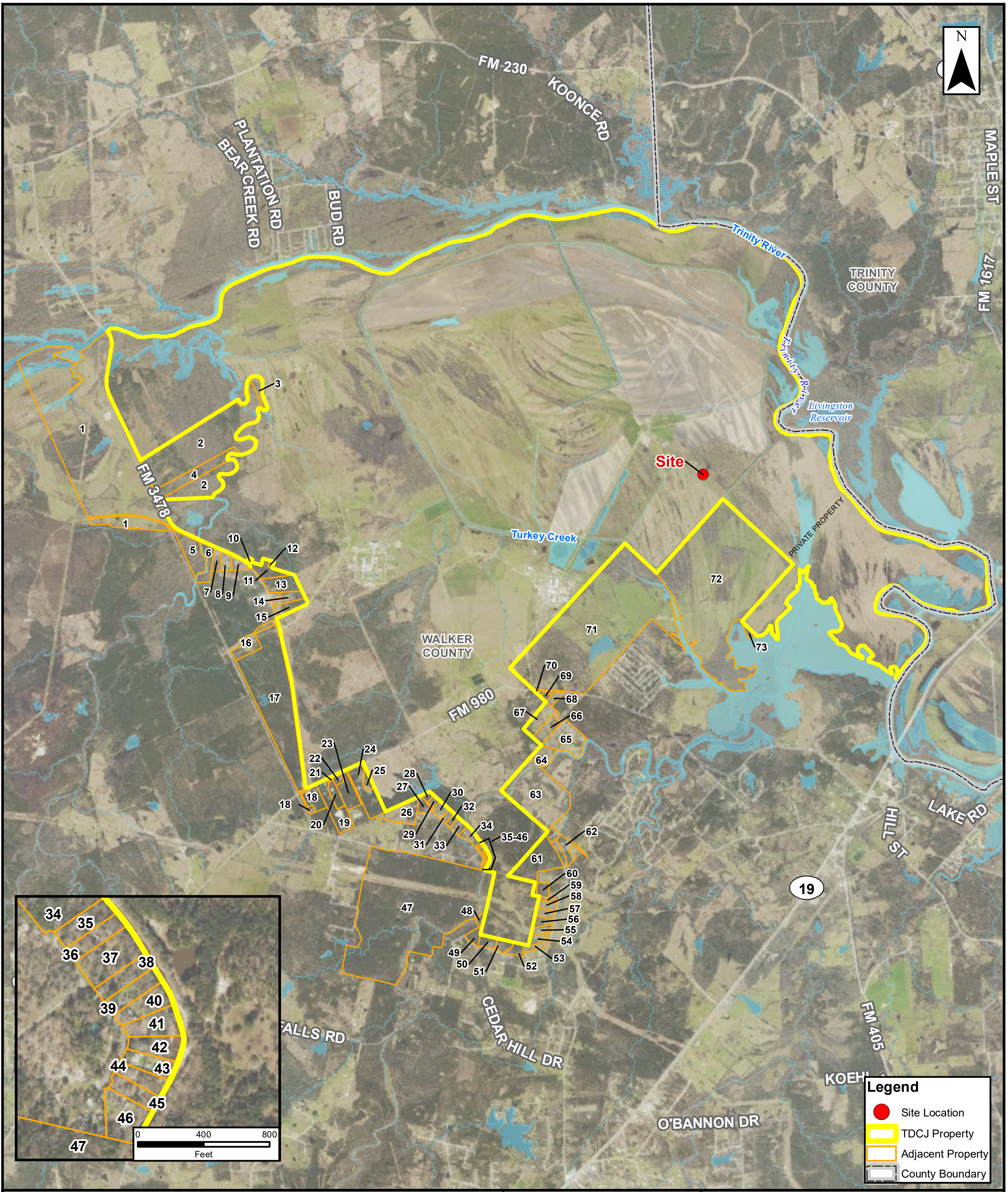
certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete.

I further certify that in accordance with Section 3005(e)(3) of the Resource Conservation and Recovery Act, as amended, the subject land disposal unit(s) are in compliance with all applicable groundwater monitoring and financial responsibility requirements of 30 TAC Sections 335.112, 335.116, and 335.117. I am aware there are significant penalties for submitting false information, including the possibility of civil penalty, criminal fines, and imprisonment.

Signature: Date: 7/2/24

ADJACENT LANDOWNER MAP,

LANDOWNER LIST, AND MAILING LISTs



0 0.625 1.25 2.5

Miles

0 3,500 7,000 14,000

Feet

AECOM

13460 Briarwick Drive, Suite 200
Austin, TX 78729
Phone: (512) 454-4797
Fax: (512) 419-5474

Title:

Topographic Map

Project:

TDCJ Ellis Unit, RCRA Renewal
HW-50361

Client:

Texas Department of Criminal Justice

Scale:	Drawn by:	Date:
As Shown	KPL	7/29/2024
	Chk'd by:	Date:
	JST	7/29/2024

Project No.:	File Name:	Attachment:
60726186	Att C - Topographic Map.mxd	C

Path: \\na.aecomnet.com\lfs\AMER\Austin-USAUS2\DCS\Projects\ENV\TDCJ\TDCJ Ellis\HW Permit Renewal\2024 Renewal\09_GIS\MXD\Att C - Topographic Map.mxd

Tracking No. 29923555

Permit No. 50361
Permittee: TDCJ Ellis Unit

Appendix I.E
Adjacent Landowner List
Rev. 2
Tracking No. 29923555

MapID	OWNER NAME	PROPERTY ADDRESS	MAILING ADDRESS
1	GIBBS BROTHERS & CO	FM 3478, TX	%WAYNE S PFLUGER P O BOX 711, HUNTSVILLE, TX 77342
2	GIBBS BROTHERS & CO	FM 3478, HUNTSVILLE, TX 77320	%WAYNE S PFLUGER P O BOX 711, HUNTSVILLE, TX 77342
3	UNKNOWN	UNKNOWN	UNKNOWN
4	UNKNOWN	UNKNOWN	UNKNOWN
5	ZIGLAR ROBERT EARL & DELAYNE SHIRAL	473 FM 3478, HUNTSVILLE, TX 77340	20723 DURAND OAK DRIVE, CYPRESS, TX 77433
6	GIBSON ANDREW JR	FM 3478, TX	5211 WHISPERING OAKS DRIVE, DALLAS, TX 75236
7	TENNYSON ZACHARY	413 FM 3478, HUNTSVILLE, TX 77320	7990 SE 701 RD, COLLINS, MO 64738
8	ST CLAIR JOSH JACOB & RUTH ANN	413 FM 3478, TX	413 FM 3478, HUNTSVILLE, TX 77320
9	SMITH GLENN	FM 3478, TX	5835 SACKVILLE CLOSE, HUMBLE, TX 77346
10	SMITH GLENN G	FM 3478, HUNTSVILLE, TX 77320	5835 SACKVILLE CLOSE, HUMBLE, TX 77346
11	SMITH GLENN G	380 A FM 3478, HUNTSVILLE, TX 77320	5835 SACKVILLE CLOSE, HUMBLE, TX 77346
12	SMITH GLENN G	FM 3478, HUNTSVILLE, TX 77320	5835 SACKVILLE CLOSE, HUMBLE, TX 77346
13	HOBBS MICHAEL R & ANITA J	334 F M 3478, HUNTSVILLE, TX 77320	334 FM 3478 RD, HUNTSVILLE, TX 77320
14	HEINEMANN REGINA J	314 FM 3478, HUNTSVILLE, TX 77320	314 FM 3478, HUNTSVILLE, TX 77320
15	WILLIAMS EQUILLA EST	282 FM 3478, HUNTSVILLE, TX 77320	%JEFF WHEATON III 282 FM 3478, HUNTSVILLE, TX 77320
16	LARA CARLOS & MARIA DOLORES	277 FM 3478, HUNTSVILLE, TX 77320	1106 ALDINE MAIL ROAD, HOUSTON, TX 77039
17	ZOYA ENTERPRISES LTD	FM 3478, HUNTSVILLE, TX 77320	223 KINGFISHER DRIVE, SUGAR LAND, TX 77478
18	STANLEY CHRISTOPHER D	1592 FM 980, HUNTSVILLE, TX 77320	4718 CLIFFSTONE LN, KATY, TX 77449
18	STANLEY CHRISTOPHER D	FM 980, HUNTSVILLE, TX 77320	4718 CLIFFSTONE LN, KATY, TX 77449
19	BARBER GLEN TODD & ANGELINA R	1630 FM 980, HUNTSVILLE, TX 77320	1630 FM 980 HUNTSVILLE, TX 77320
20	BARBER JUSTIN GLEN	1630 A FM 980, HUNTSVILLE, TX 77320	1630A FM 980, HUNTSVILLE, TX 77320
21	RIVERSIDE SPECIAL UTILITY DISTRICT	FM 190, HUNTSVILLE, TX 77320	P O BOX 194, RIVERSIDE, TX 77367
22	BARBER GLEN TODD & ANGELINA R	FM 980, HUNTSVILLE, TX 77320	1630 FM 980, HUNTSVILLE, TX 77320
23	RANDOLPH PEYTON N & DEBORAH L	1654 FM 980, HUNTSVILLE, TX 77320	1654 FM 980 RD, HUNTSVILLE, TX 77320
24	WOODS LEONARD E	FM 980, TX	1682 FM 980 RD, HUNTSVILLE, TX 77320
25	WOODS LEONARD E	1682 FM 980 RD, HUNTSVILLE, TX 77320	1682 FM 980 RD, HUNTSVILLE, TX 77320
26	BOCKHORN MARVIN & SUSAN & DENNIS & MARTHA ROACH	KORNEGAY LANE, TX	P O BOX 9513, HUNTSVILLE, TX 77340
27	BREWER TIMOTHY L & DONNA K	15 GRACE LANE WEST, HUNTSVILLE, TX 77320	2209 SPRUCE DRIVE, ROSENBURG, TX 77471
28	BREWER TIM & DONNA	GRACE LANE WEST, HUNTSVILLE, TX 77320	2209 SPRUCE, ROSENBURG, TX 77471
29	HOLMES BENNY F JR	27 GRACE LANE WEST, HUNTSVILLE, TX 77320	27 GRACE LANE, HUNTSVILLE, TX 77320
30	LANSFORD MIKE M JR	66 GRACE LN, HUNTSVILLE, TX 77320	66 GRACE LN, HUNTSVILLE, TX 77320
31	MARTINEZ JOSE L & CLAUDIA MARTINEZ	50 GRACE LANE, HUNTSVILLE, TX 77320	50 GRACE LANE, HUNTSVILLE, TX 77320
32	THE UPHOLSTERY ROOM INC	50 A GRACE LANE, HUNTSVILLE, TX 77320	526 11TH ST, HUNTSVILLE, TX 77340
33	OLEINIK THOMAS & CHARLOTTE	22 GRACE LANE, HUNTSVILLE, TX 77320	22 GRACE LN, HUNTSVILLE, TX 77320
34	WADLEY PHILLIP DUANE & MICHELLE ANNETTE	2 GRACE LANE, TX	2 GRACE LANE, HUNTSVILLE, TX 77320
35	DIXON ORMAN DAVID	CREEK ROAD, TX	P O BOX 675, RIVERSIDE, TX 77367
36	DIXON ORMAN & SAUNDRA	CREEK RD, HUNTSVILLE, TX 77320	P O BOX 675, RIVERSIDE, TX 77367
37	DIXON ORMAN & SAUNDRA	CREEK ROAD, TX	P O BOX 675, RIVERSIDE, TX 77367
38	CALLAHAN CARRIE & DUSTIN VICE	20 CREEK ROAD, HUNTSVILLE, TX 77320	19823 TWISTED CREEK DRIVE, TOMBALL, TX 77375
39	REYNOLDS JOSEPHINE	18 CREEK RD, HUNTSVILLE, TX 77320	18 CREEK RD, HUNTSVILLE, TX 77320
40	GRAHMANN LEROY	14 CREEK ROAD, HUNTSVILLE, TX 77320	% MRS. LEROY GRAHMANN 14 CREEK ROAD, HUNTSVILLE, TX 77320
41	NICHOLAS STEPHEN SEAN	12 CREEK ROAD, HUNTSVILLE, TX 77320	14 OLD MIDWAY RD, MIDWAY, TX 75852

Permit No. 50361
Permittee: TDCJ Ellis Unit

Appendix I.E
Adjacent Landowner List
Rev. 2
Tracking No. 29923555

MapID	OWNER NAME	PROPERTY ADDRESS	MAILING ADDRESS
42	HOWARD JONATHAN B	10 CREEK RD, HUNTSVILLE, TX 77320	10 CREEK RD, HUNTSVILLE, TX 77320
43	BAKER CAROLYN G & CLIFFORD A	8 CREEK ROAD, HUNTSVILLE, TX 77320	8 CREEK ROAD, HUNTSVILLE, TX 77320
44	HELTON ALLEN	6 CREEK ROAD, HUNTSVILLE, TX 77320	6 CREEK RD, HUNTSVILLE, TX 77320
45	HELTON JOYCE G	4 CREEK RD, HUNTSVILLE, TX 77320	C/O ALLEN HELTON 6 CREEK RD, HUNTSVILLE, TX 77320
46	BAYES DANIEL ANDREW	2 CREEK ROAD, HUNTSVILLE, TX 77320	7517 STATE HIGHWAY 75 NORTH, HUNTSVILLE, TX 77340
47	AMERICAN FLUORITE INC	LOUIS VOAN RD, TX	1425 LAKE FRONT CIRCLE, STE 200 , THE WOODLANDS, TX 77380
48	UNKNOWN	UNKNOWN	UNKNOWN
49	AMERICAN FLUORITE INC	FRANK CLOUD ROAD, TX	1425 LAKE FRONT CIRCLE, STE 200 , THE WOODLANDS, TX 77380
50	R J TAYLOR FAMILY LIMITED PARTNERSHIP	102 FRANK CLOUD RD, HUNTSVILLE, TX 77320	123 ROUNDABOUT LANE, HUNTSVILLE, TX 77320
51	CARLSON RANDALL L	FRANK CLOUD ROAD, TX	82 FRANK CLOUD RD, HUNTSVILLE, TX 77320
52	CARLSON RANDALL L & KAY	FRANK CLOUD ROAD, TX	82 FRANK CLOUD RD, HUNTSVILLE, TX 77320
53	REED FLOYD LEE	411 WOODFARM ROAD, HUNTSVILLE, TX 77320	411 WOOD FARM RD, HUNTSVILLE, TX 77320
54	HARRISON RICHARD E	UNKNOWN	419 WOOD FARM ROAD, HUNTSVILLE, TX 77320
55	HORN TERRY R	435 WOODFARM RD, HUNTSVILLE, TX 77320	1347 HILLCREST DR, GRAHAM, TX 76450
56	WOODERSON LA JUANA	443 WOODFARM ROAD, HUNTSVILLE, TX 77320	443 WOODFARM RD, HUNTSVILLE, TX 77320
57	MORGAN PATRICIA A	461 WOOD FARM RD, HUNTSVILLE, TX 77320	461 WOOD FARM RD, HUNTSVILLE, TX 77320
58	RUIZ ERACLIO & TERESA	471 WOODFARM RD, HUNTSVILLE, TX 77320	471 WOODFARM RD, HUNTSVILLE, TX 77320
59	GRISHAM LARRY G & MARTHA R	481 WOOD FARM ROAD, HUNTSVILLE, TX 77320	P O BOX 6233, HUNTSVILLE, TX 77342
60	GRISHAM MARK K	UNKNOWN	PO BOX 6233, HUNTSVILLE, TX 77342
61	HOWARD PERCY	ST OLIVE CEMETERY RD, TX	331 FM 247, HUNTSVILLE, TX 77320
62	MCGILBERRY GARY LEWIS & LISA MAE	63A MCGILBERRY RD, TX	PO BOX 632, RIVERSIDE, TX 77367
63	MCGILBERRY HAZEL PEARL	MCGILBERRY RD #63, TX	PO BOX 33, RIVERSIDE, TX 77367
64	OLIVER JIMMY WAYNE & NANCY JANE	FM 980, TX	P O BOX 214, RIVERSIDE, TX 77367
65	WEINZIERL FREDERICK M	1732 FM 980, TX	JOHN WEINZIERL EXECUTOR 1616 S VOSS RD STE 530, HOUSTON, TX 77057
66	OLIVER JIMMY WAYNE & NANCY JANE	FM 980, TX	P O BOX 214, RIVERSIDE, TX 77367
67	OLIVER JIMMY WAYNE & NANCY JANE	1732 FM 980, TX	P O BOX 214, RIVERSIDE, TX 77367
68	OLIVER JIMMY WAYNE & NANCY JANE	FM 980, TX	P O BOX 214, RIVERSIDE, TX 77367
69	GAINOUS MARVIN DWIGHT & GUNTER HEATHER RENEE	1728 FM 980, HUNTSVILLE, TX 77320	20107 WOODHALL LN, HUMBLE, TX 77338
70	GONZALEZ JOSE R & KARLA V	1710 FM 980, HUNTSVILLE, TX 77320	633 FM 2821 RD W TLR 21, HUNTSVILLE, TX 77320
71	DOMINEY FAMILY ENTERPRISES LLC	FM 980, TX	2700 LAKE ROAD, HUNTSVILLE, TX 77340
72	DOMINEY FAMILY ENTERPRISES LLC	FM 980, TX	2700 LAKE ROAD, HUNTSVILLE, TX 77340
73	GOODROW JAMES	UNKNOWN	175 EMERY OAK WAY, HUNTSVILLE, TX 77320

Permit No: 50361
Permittee: TDCJ Ellis Unit

Adjacent Property Owners

GIBBS BROTHERS & CO
WAYNE S PFLUGER
PO BOX 711
HUNTSVILLE TX 77342

ZIGLAR ROBERT EARL &
DELAYNE SHIRAL
20723 DURAND OAK DRIVE
CYPRESS TX 77433

GIBSON ANDREW JR
5211 WHISPERING OAKS DRIVE
DALLAS TX 75236

TENNYSON ZACHARY
7990 SE 701 RD
COLLINS MO 64738

ST CLAIR JOSH JACOB & RUTH ANN
413 FM 3478
HUNTSVILLE TX 77320

SMITH GLENN G
5835 SACKVILLE CLOSE
HUMBLE TX 77346

HOBBS MICHAEL R & ANITA J
334 FM 3478 RD
HUNTSVILLE TX 77320

HEINEMANN REGINA J
314 FM 3478
HUNTSVILLE TX 77320

WILLIAMS EQUILLA EST
%JEFF WHEATON III 282 FM 3478
HUNTSVILLE TX 77320

LARA CARLOS & MARIA DOLORES
1106 ALDINE MAIL ROAD
HOUSTON TX 77039

ZOYA ENTERPRISES LTD
223 KINGFISHER DRIVE
SUGAR LAND TX 77478

STANLEY CHRISTOPHER D
4718 CLIFFSTONE LN
KATY TX 77449

BARBER GLEN TODD & ANGELINA R
1630 FM 980
HUNTSVILLE TX 77320

BARBER JUSTIN GLEN
1630A FM 980
HUNTSVILLE TX 77320

RIVERSIDE SPECIAL UTILITY
DISTRICT
PO BOX 194
RIVERSIDE TX 77367

BARBER GLEN TODD & ANGELINA R
1630 FM 980
HUNTSVILLE TX 77320

RANDOLPH PEYTON N &
DEBORAH L
1654 FM 980 RD
HUNTSVILLE TX 77320

WOODS LEONARD E
1682 FM 980 RD
HUNTSVILLE TX 77320

BOCKHORN MARVIN & SUSAN &
DENNIS & MARTHA ROACH
PO BOX 9513
HUNTSVILLE TX 77340

BREWER TIMOTHY L & DONNA K
2209 SPRUCE DRIVE
ROSENBURG TX 77471

HOLMES BENNY F JR
27 GRACE LANE
HUNTSVILLE TX 77320

LANSFORD MIKE M JR
66 GRACE LN
HUNTSVILLE TX 77320

MARTINEZ JOSE L &
CLAUDIA MARTINEZ
50 GRACE LANE
HUNTSVILLE TX 77320

THE UPHOLSTERY ROOM INC
526 11TH ST
HUNTSVILLE TX 77340

OLEINIK THOMAS & CHARLOTTE
22 GRACE LN
HUNTSVILLE TX 77320

WADLEY PHILLIP DUANE &
MICHELLE ANNETTE
2 GRACE LANE
HUNTSVILLE TX 77320

DIXON ORMAN & SAUNDRA
PO BOX 675
RIVERSIDE TX 77367

CALLAHAN CARRIE & DUSTIN VICE
19823 TWISTED CREEK DRIVE
TOMBALL TX 77375

REYNOLDS JOSEPHINE
18 CREEK RD
HUNTSVILLE TX 77320

GRAHMANN LEROY
MRS LEROY GRAHMANN
14 CREEK ROAD
HUNTSVILLE TX 77320

Permit No: 50361
Permittee: TDCJ Ellis Unit

Adjacent Property Owners

NICHOLAS STEPHEN SEAN
14 OLD MIDWAY RD
MIDWAY TX 75852

HOWARD JONATHAN B
10 CREEK RD
HUNTSVILLE TX 77320

BAKER CAROLYN G & CLIFFORD A
8 CREEK ROAD
HUNTSVILLE TX 77320

HELTON ALLEN
6 CREEK RD
HUNTSVILLE TX 77320

HELTON JOYCE G
C/O ALLEN HELTON 6 CREEK RD
HUNTSVILLE TX 77320

BAYES DANIEL ANDREW
7517 STATE HIGHWAY 75 NORTH
HUNTSVILLE TX 77340

AMERICAN FLUORITE INC
1425 LAKE FRONT CIRCLE STE 200
THE WOODLANDS TX 77380

R J TAYLOR FAMILY LIMITED
PARTNERSHIP
123 ROUNDABOUT LANE
HUNTSVILLE TX 77320

CARLSON RANDALL L & KAY
82 FRANK CLOUD RD
HUNTSVILLE TX 77320

REED FLOYD LEE
411 WOOD FARM RD
HUNTSVILLE TX 77320

HARRISON RICHARD E
419 WOOD FARM ROAD
HUNTSVILLE TX 77320

HORN TERRY R
1347 HILLCREST DR
GRAHAM TX 76450

WOODERSON LA JUANA
443 WOODFARM RD
HUNTSVILLE TX 77320

MORGAN PATRICIA A
461 WOOD FARM RD
HUNTSVILLE TX 77320

RUIZ ERACLIO & TERESA
471 WOODFARM RD
HUNTSVILLE TX 77320

GRISHAM LARRY G & MARTHA R
PO BOX 6233
HUNTSVILLE TX 77342

GRISHAM MARK K
PO BOX 6233
HUNTSVILLE TX 77342

HOWARD PERCY
331 FM 247
HUNTSVILLE TX 77320

MCGILBERRY GARY LEWIS &
LISA MAE
PO BOX 632
RIVERSIDE TX 77367

MCGILBERRY HAZEL PEARL
PO BOX 33
RIVERSIDE TX 77367

WEINZIERL FREDERICK M
JOHN WEINZIERL EXECUTOR
1616 S VOSS RD STE 530
HOUSTON TX 77057

OLIVER JIMMY WAYNE &
NANCY JANE
PO BOX 214
RIVERSIDE TX 77367

GAINOUS MARVIN DWIGHT &
GUNTER HEATHER RENEE
20107 WOODHALL LN
HUMBLE TX 77338

GONZALEZ JOSE R & KARLA V
633 FM 2821 RD W TLR 21
HUNTSVILLE TX 77320

DOMINEY FAMILY ENTERPRISES LLC
2700 LAKE ROAD
HUNTSVILLE TX 77340

GOODROW JAMES
175 EMERY OAK WAY
HUNTSVILLE TX 77320

AREA SUPERVISOR
NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL ASSESSMENT
BRANCH
4700 AVENUE U
GALVESTON TX 77550

LONG NEWS SERVICE
2103B POMPTON DR
AUSTIN TX 78757

ENVIRONMENTAL PROTECTION AGENCY
RCRA PERMITS 6PD-O
1445 ROSS AVENUE
DALLAS TX 75202-2733

CYRUS REED
LONE STAR CHAPTER SIERRA CLUB
PO BOX 4998
AUSTIN TX 78765-4998

JEFF SAITAS
1122 COLORADO ST STE 208
AUSTIN TX 78701

GROUPS ALLIED TO STOP POLLUTION
ATTN LORRIE COTERILL
1826 E BELTLINE ROAD
WILMER TX 75172

RAILROAD COMMISSION OF TEXAS
TECHNICAL PERMITTING
ENVIRONMENTAL SUPPORT
1701 NORTH CONGRESS AVENUE
AUSTIN TX 78701

TEXAS HISTORICAL COMMISSION
ATTN STATE HISTORICAL
PRESERVATION
OFFICER AND STATE ARCHEOLOGIST
1511 N COLORADO ST & 105 W 16TH ST
AUSTIN TX 78701

TEXAS DEPARTMENT OF AGRICULTURE
ATTN DAVID T VILLARREAL PHD
ENVIRONMENTAL QUALITY PROGRAM
1700 NORTH CONGRESS AVENUE
AUSTIN TX 78701

TEXAS DEPARTMENT OF HEALTH
ATTN HEIDI BOJES
1100 WEST 49TH STREET
AUSTIN TX 78756

TONY WILLIAMS
GENERAL LAND OFFICE
COASTAL COORDINATION COUNCIL
1700 N CONGRESS AVE   ROOM 617
AUSTIN TX 78701-1495

(Only if Coastal Management Plan
Language is present in the notice.)

LAURA ZEBEHAZY
TEXAS PARKS AND WILDLIFE DEPT
WATER RESOURCES BRANCH
4200 SMITH SCHOOL ROAD
AUSTIN TX 78744

HW STANDARD MAILING LIST
Permit No. 50361
TDCJ Ellis Unit

CALEB AVILA
EL PERICO SPANISH NEWSPAPER
PO BOX 276
PORT NECHES TX 77651 0276

LARA GAREY
1401 RIMSTONE DR
CEDAR PARK TX 78613 7691

REVEREND GEORGE HAW RUSSELL
1401 19TH ST
HUNTSVILLE TX 77340 5057

MARTIN K SMITH PE
TX DEPT OF CRIMINAL JUSTICE
PO BOX 4011
HUNTSVILLE TX 77342 4011

SAL SOLIS
PO BOX 398
HOUSTON TX 77001 0398

SAL GIOVANNI SOLIS
PO BOX 920648
HOUSTON TX 77292 0648

**INTERESTED
PARTIES PERMIT NO.
50361 TDCJ ELLIS
UNIT**

THE HONORABLE CHARLES SCHWERTNER
TEXAS SENATE
DISTRICT   ROOM 3E.10
TEXAS STATE CAPITOL

THE HONORABLE KYLE KACAL
TEXAS HOUSE OF REPRESENTATIVES
DISTRICT   ROOM E2.810
TEXAS STATE CAPITOL

STATE OFFICIALS
PERMIT NO. 50361
TDCJ ELLIS UNIT

SAN JACINTO RIVER AUTHORITY
1577 DAM SITE RD
CONROE TX 77304 4107

PUBLIC HEALTH REGION 6/5
TEXAS DEPARTMENT OF STATE HEALTH SERVICES
5425 POLK ST STE 420
HOUSTON TX 77023 1444

US ARMY CORPS OF ENGINEERS
2000 FORT POINT RD
GALVESTON TX 77550 3211

FIELD SUPERVISOR
US FISH & WILDLIFE SERVICE
17629 EL CAMINO REAL STE 211
HOUSTON TX 77058 3051

WALKER COUNTY HEALTH AUTHORITY SHARON HUFF
52 STATE HIGHWAY 75 N DR
DARREL WELLS
HUNTSVILLE TX 77320 3862

WALKER COUNTY JUDGE TRACY SORENSEN
COUNTY COURTHOUSE
1100 UNIVERSITY AVE
HUNTSVILLE TX 77340 4639

GLENN C CLINGENPEEL
TRINITY RIVER AUTHORITY OF TEXAS
5300 S COLLINS ST
ARLINGTON TX 76018 1710

ZACH HOLLAND
GENERAL MANAGER
BLUEBONNET GROUNDWATER CONSERVATION DISTRICT
PO BOX 269
NAVASOTA TX 77868 0269

COUNTY OFFICIALS
PERMIT NO. 50361
TDCJ ELLIS UNIT

CITY OF HUNTSVILLE
HEALTH OFFICIAL JESSE
FERGUSON
1212 AVENUE M
HUNTSVILLE TX 77340 4608

CITY OF HUNTSVILLE
MAYOR RUSSELL HUMPHREY
1212 AVENUE M
HUNTSVILLE TX 77340 4608

HUNTSVILLE OFFICIALS
PERMIT NO. 50361
TDCJ ELLIS UNIT

BILINGUAL NOTICE CONFIRMATION

Bilingual Notice Instructions:

For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, requires a bilingual education program for an entire school district should the requisite alternative language speaking student population exist. However, there may not be any bilingual-speaking students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location to satisfy the school's obligation to provide such a program.

If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the applicant complete the publication in the alternative language.

Bilingual notice confirmation for this application:

1. Is the school district of the elementary or middle school nearest to the facility required by the Texas Education Code to have a bilingual program?

   ▣ Yes ☐ No

   (**If No**, alternative language notice publication not required)

2. **If Yes** to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility?

   ▣ Yes ☐ No

   (**IF Yes** to questions 1 and 2, alternative language publication is required; **If No** to question 2, then consider the next question)

3. **If Yes** to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location? ☐ Yes ☐ No

   (**If Yes** to questions 1 and 3, alternative language publication is required; **If No** to question 3, then consider the next question)

4. **If Yes** to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC 89.1205(g)?

   ☐ Yes ☐ No

   (**If Yes** to questions 1 and 4, alternative language publication is required; **If No** to question 4, alternative language notice publication not required)

If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program?

Spanish____

SECTION II FACILITY SITING

II. Facility Siting Criteria

Provide all Part B responsive inform
format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

For all new hazardous waste management facilities or areal expansions of existing hazardous waste management facilities provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 335, Subchapter G. The report must address each requirement applicable to the type of activity submitted in the application. Reference specific rule numbers whenever possible. Supporting information may be cross-referenced to other parts of this application such as Section V - Engineering Report or Section VI - Geology Report, but information submitted in previous applications must be fully reproduced herein. In addition, provide the information in Table II, as applicable.

For permit renewals provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 335, Subchapter G. In addition, provide the information in Table II, as applicable. The applicant may resubmit the information submitted with the original permit application provided this information has not changed. For a renewal this information is necessary to ensure a complete application is received.

For capacity expansions of existing facilities, please provide information in Table II, as applicable. Please note however, that additional technical information may be requested to address any facility siting characteristics noted in Table I, under Facility Siting Summary.

> **NOTE:** The standards contained in §335.204(a)(6) - (9), (b)(7) - (12), (c)(6) - (11), (d)(6) - (11), and (e) (8) - (13) are not applicable to facilities that have submitted a notice of intent to file a permit application pursuant to §335.391 of this title (relating to Pre-Application Review) prior to May 3, 1988, or to facilities that have filed permit applications pursuant to §335.2(a) of this title which were submitted in accordance with Chapter 305 of this title and that were declared to be administratively complete pursuant to §281.3 of this title (relating to Initial Review) prior to May 3, 1988.[30 TAC

A. Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills.

Complete Table II.A-Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills.

B. Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)]

RESERVED

C. Additional Requirements for Waste Piles [30 TAC 335.204(c)]

RESERVED

D. Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]

RESERVED

E. Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place)

Complete Table II.E. - Additional Requirements for Landfills (and Surface Impoundments

F. Flooding

1. Identify whether the facility is located within a 100-year flood plain [40 CFR 270.14(b)(11)(iii)]. This identification must indicate the source of data for such determination and include a copy of relevant documentation (e.g., flood maps, if used and/or calculations). The boundaries of the hazardous waste management facility must be shown on the flood plain map. If the facility is not subject to inundation as a result of a 100-year flood event, indicate that the facility is not within the 100-year flood plain, and do not complete the remainder of the Flooding section in Table II. An applicant for a proposed hazardous waste landfill, areal expansion of a hazardous waste landfill, or a commercial hazardous waste land disposal unit may not rely solely on flood plain maps prepared by the Federal Emergency Management Agency (FEMA) or a successor a

2. If the facility is located within the 100-year flood plain the applicant must provide information detailing the specific flooding levels and other events (e.g., Design Hurricane projected by Corps of Engineers) which impact the flood protection of the facility. Information shall also be provided identifying the 100-year flood level and any other special flooding factors (e.g., wave action) which must be considered in designing, construction, operating, or maintaining the facility to withstand washout from a 100-year flood.

3. State whether any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.), designed to prevent washout from the 100-year flood.

   a. **If Yes**: provide in Section V an engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)]

   Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]

   b. **If No**: the applicant shall provide in Section V a plan for constructing flood protection devices and a schedule including specific time frames for completion. Provide engineering analyses to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)]

   Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR

4. If applicable, and in lieu of the flood protection devices from above, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. [40 CFR 270.14(b)(11)(iv)(c)] The

   a. Timing of such movement relative of flood levels, including estimated time to move the waste, to show that such movement can be completed before flood waters reach the facility. Indicate which specific events shall be use to begin waste movement (e.g., Hurricane warning, Flash Flood watch, etc.);

b. A description of the location(s) to which the waste will be moved and a demonstration that these facilities will be eligible to receive hazardous waste in accordance with appropriate regulations (i.e., a permitted facility);

c. The planned procedures, equipment, and personnel to be used and the means to ensure that such resources will be available in time for use; and

d. The potential for accidental discharges of the waste during movement and precautions taken to preclude accidental discharges.

G. Additional Information Requirements

1. For a new hazardous waste management facility, include a map of relevant local land-use plans and descriptions of the major routes of travel in the vicinity of the facility to be used for the transportation of hazardous waste to and from the facility covering at least a five (5)-mile radius from the boundaries of the facility. [30 TAC 305.50(a)(10)(A)&(D)]

RESERVED

2. For a new commercial hazardous waste management facility as defined in 30 TAC 335.202 or the subsequent areal expansion of such a facility or unit of that facility, indicate on the map the nearest established residence, church, school, day care center, surface water body used for a public drinking water supply, and dedicated

RESERVED

3. For new commercial hazardous waste management facilities, submit the following: [30 TAC 305.50(a)(12)(A)]-

RESERVED

4. Include the names and locations of industrial and other waste-generating facilities within 0.5 miles for a new on-site hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)]

5. Include the names and locations of industrial and other waste-generating facilities within 1.0 miles for a new commercial hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)]

6. For existing land disposal facility units provide documentation that the information required by 30 TAC 335.5 has been placed in the county deed records. If previously submitted, please reference the submittal by date and

7. If a surface impoundment or landfill (including post-closure) is to be permitted, provide exposure information to accompany this application and in accordance with 30 TAC 305.50(a)(8) and 40 CFR 270.10(j). This information will be considered separately from the TCEQ application completeness determination.

8. For a hazardous waste management facility requesting a capacity expansion of an existing hazardous waste management facility, please provide in Section

TABLE II

FACILITY SITING

Table II

Table II contains the following: Table II.A, Table II.B, Table II.C, Table II.D, Table II.E and Flooding from Section II. F of the Part B Application

Table II.A - Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills

Is the facility located or proposed to be located[1]:

In wetlands? [as applicable: 30 TAC 335.204(a)(2), (b)(2), (c)(2), (d)(2), and/or (e)(2)	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste management facility or areal expansion of an existing facility into wetlands, pursuant to 30 TAC 335.205(a)(1).	
In the critical habitat of an endangered species of plant or animal?[6] [as applicable: 30 TAC 335.204(a)(8), (b)(10), (c)(9), (d)(9), and/or (e)(11)]	No
If Yes: submit in Section V information demonstrating that design, construction, and operational features will prevent adverse effects on such critical habitat.	
On the recharge zone of a sole-source aquifer?2 [30 TAC 335.204(a)(3), (b)(3), (c)(3), (d)(3), and/or (e)(3)]	No
If Yes: then for storage and processing facilities (excluding storage surface impoundments), submit in Section V information demonstrating that secondary containment is provided to preclude migration to groundwater from spills, leaks, or discharges.	
In an area overlying a regional aquifer? [as applicable: 30 TAC 335.204(a)(4), (b)(4), (c)(4), (d)(4), and/or (e)(4)]	No
If Yes: submit site-specific information in Section V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1).	
In areas where soil unit(s) are within five feet of the containment structure, or treatment zone, as applicable, that have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10-5 cm/sec? [as applicable: 30 TAC 335.204(a)(5), (b)(5), (c)(5), (d)(5), and/or (e)(5)]	No
If Yes: provide additional information in Sections V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1)	
In areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system?[6] [as applicable: 30 TAC 335.204 (a)(6), (b)(7), (c)(6), and/or (e)(8)].	No
If Yes: provide information in Section V demonstrating compliance with 30 TAC 335.205(a)(1).	

In areas of active geologic processes, including but not limited to erosion, submergence, subsidence, faulting, karst formation, flooding in alluvial flood wash zones, meandering river bank cuttings, or earthquakes?[6] [as applicable: 30 TAC 335.204(a)(7), (b)(8) ,(c)(7), (d)(7), and/or (e)(9)]	No
Within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures?[6] [as applicable: 30 TAC 335.204(a)(9), (b)(12) ,(c)(11), (d)(11), and/or (e)(13)]	No
If Yes: specify in Section V the design, construction, and operational features that will prevent adverse effects resulting from any fault movement. If a fault is found to be present, the width and location of the actual or inferred surface expression of the fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, must be determined by a qualified geologist or geotechnical engineer and reported in Section VI.	

Table II.B. - Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)]:

Is the land treatment facility located or proposed to be located:

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(6) and 335.205(a).
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?
If Yes: submit in Section V.F design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.
If Yes: submit Section V.F design, construction and operational features, which will prevent adverse effects resulting from storm surge and erosion or scouring by water.
On a barrier island or peninsula?
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(11) and 335.205(a)(1).

Table II.C. - Additional Requirements for Waste Piles [30 TAC 335.204(c)]

Is the waste pile located or proposed to be located:

Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?
If Yes: submit in Section V.E design, construction, and operational features on the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.
If Yes: submit Section V.E design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.
On a barrier island or peninsula?[6]
If Yes: the TCEQ shall not issue a permit for a new hazardous waste pile or an areal expansion of an existing waste pile, pursuant to 30 TAC 335.204(c)(10) and 335.205(a)(1).

Table II.D. - Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]

Is the land treatment facility located or proposed to be located:

Within 1000 feet of an area of active coastal shoreline erosion even though the area is protected by a barrier island or peninsula
If Yes: submit in Section V.D design, construction, and operational features of the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.
If Yes: then submit in Section V.D design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.
On a barrier island or peninsula?[6]
If Yes: the TCEQ shall not issue a permit for a new hazardous waste storage surface impoundment or an areal expansion of an existing storage surface impoundment, pursuant to 30 TAC 335.204(d)(10) and 335.205(a)(1).

Table II.E. - Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place)

Is the landfill located or proposed to be located:

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(6) and 335.205(a)(1).	
(For commercial hazardous waste landfills) in the 100-year flood plain of a perennial stream that is delineated on a flood map adopted by the Federal Emergency Management Agency after September 1, 1985, as zone A1-99, VO, or V1-30?	Yes, See below
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(7) and 335.205(a)(1).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	No
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barriers island or peninsula.	No
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(12) and 335.205(a)(1).	

Flooding (see Section II Instructions, Item F)

Is the facility within a 100-year flood plain?	Yes
Has a flood plain map been provided?	Yes
Has information about flooding levels and events, and other special flooding factors, been provided?[3]	Yes
Do any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.) designed to prevent washout from the 100-year flood?[3]	Yes, See Below
If Yes: provide in Section V an engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][4]	
If No: the applicant shall provide in Section V a plan for constructing flood protection devices and a schedule including specific time frames for completion. Provide engineering analyses to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][5]	
If applicable, and in lieu of the flood protection devices from above, was a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded provided?[3, 6]	Not Applicable
Additional Information Requirements (see Section II instructions, Item G): Submitted?	Yes

1. Provide the source of information for all questions in the appendix.
2. Note: Land treatment facilities, waste piles, storage surface impoundments, and landfills may not be located on the recharge zone of a sole-source aquifer.
3. Only required to be submitted if the facility is subject to inundation as a result of a 100-year flood event.
4. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
5. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
6. The standards contained in §335.204(a)(6) - (9), (b)(7) - (12), (c)(6) - (11), (d)(6) - (11), and (e) (8) - (13) are not applicable to facilities that have submitted a notice of intent to file a permit application pursuant to §335.391 of this title (relating to Pre-Application Review) prior to May 3, 1988, or to facilities that have filed permit applications pursuant to §335.2(a) of this title which were submitted in accordance with Chapter 305 of this title and that were declared to be administratively complete pursuant to §281.3 of this title (relating to Initial Review) prior to May 3, 1988.[30 TAC 335.201(b)]

APPENDIX II.F

FLOOD PROTECTION DEVICE REPORT

ENVIRONEERING, INC.

SECTION II.F

FLOOD PROTECTION DEVICE REPORT

Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

March 31, 2001

Prepared by:

ENVIRONEERING, INC.
16350 Park Ten Place Ste.140
Houston, Texas 77084

SECTION II.F

FLOOD PROTECTION DEVICE REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

TABLE OF CONTENTS

ENVIRONEERING, INC.

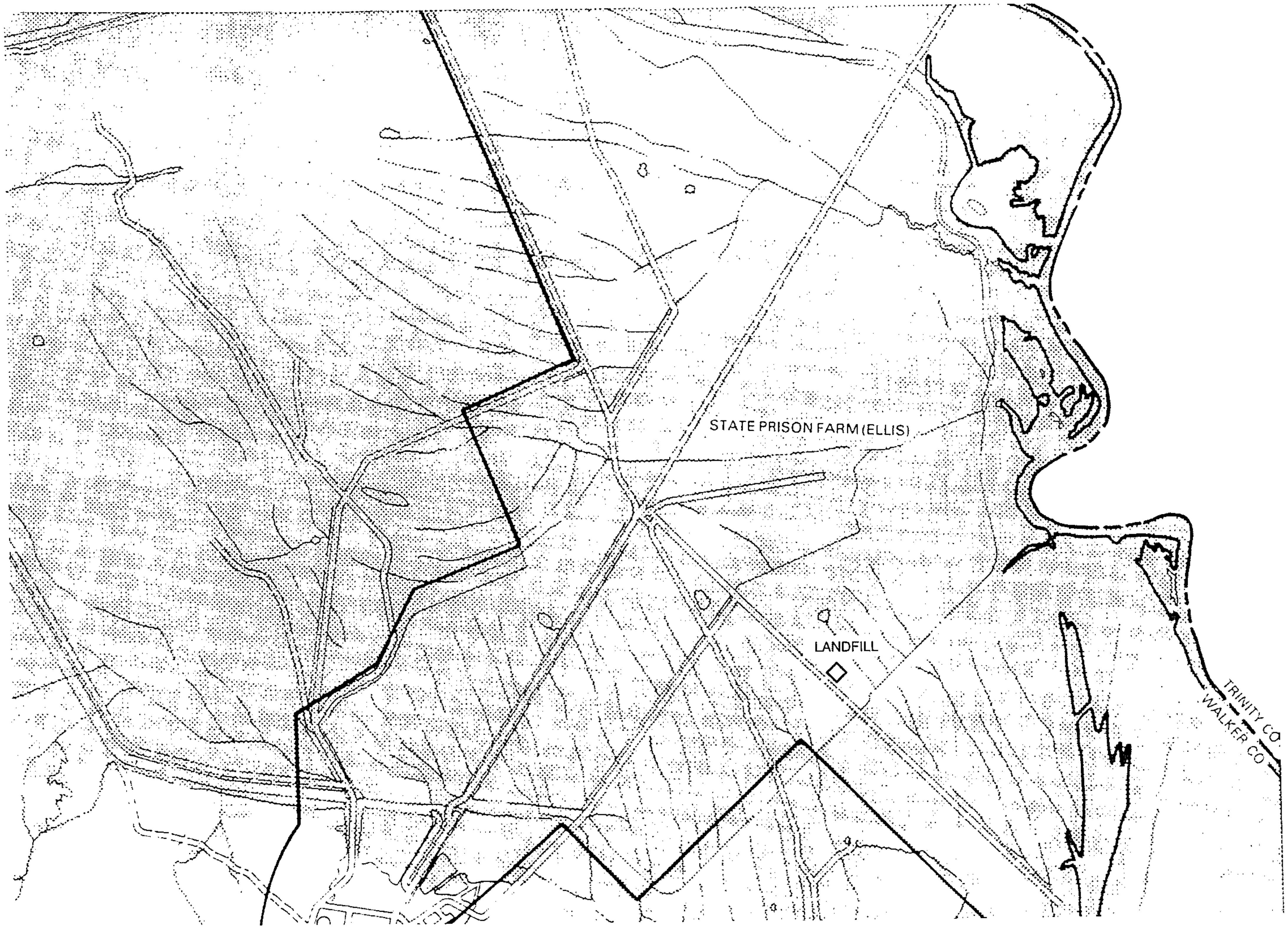
SECTION II.F
FLOOD PROTECTION DEVICE REPORT

Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

II.F.1 BACKGROUND

The Texas Department of Criminal Justice - Institutional Division (TDCJ-ID) owns and operates the Ellis correctional unit located near the city of Huntsville, Texas in Walker County, Texas. The Ellis unit contains an inactive landfill for which a Part A permit application was submitted to the Texas Department of Health (TDH) for permitting as a non hazardous waste disposal facility for municipal type wastes. Before completion of Part B of the permit application and final permitting of the landfill by the TDH, the landfill ceased receipt of all wastes. However, a subsequent inspection of the landfill by the then Texas Water Commission (TWC) resulted in the TWC preparing a "Notice of Executive Director's Preliminary Report and Petition for a Texas Water Commission Order Assessing Administrative Penalties and Requiring Certain Actions of Texas Department of Corrections - Ellis Unit I", dated May 25, 1989. As a result, the TDCJ-ID signed an Agreed Order to prepare and submit a Part B permit application for the inactive landfill as if it were a known hazardous waste landfill. Integral to the preparation of this permit is a discussion of whether or not the facility is in a 100-year floodplain and if so, whether a flood control device is in place.

The Ellis landfill is located within the Trinity River 100-year flood plain according to the Federal Emergency Management Agency (FEMA) flood hazard boundary maps for Walker County (Community-Panel No. 481042 0004 A). Figure II.F.1-1 shows the landfill on a portion of the referenced FEMA map. Specific 100-year flood levels are shown on the FEMA map and indicate that the 100-year flood would inundate properties located at 150 Feet-MSL and below. The landfill unit is located at an approximate elevation of 138 feet-MSL to 139 feet-MSL.



LEGEND

SPECIAL FLOOD HAZARD AREA ▨ ZONE A

Note: These maps may not include all Special Flood Hazard Areas in the community. After a more detailed study, the Special Flood Hazard Areas shown on these maps may be modified, and other areas added.

APPROXIMATE SCALE IN FEET

2000 0 2000

ENVIRONEERING, INC.

FIGURE II.F.1
FLOOD PLAIN MAP

ELLIS I LANDFILL
TX. DEPT. OF CRIMINAL JUSTICE

DRAWN BY:	DATE:	PROJECT NO.
JSC	3/20/01	111-07

SECTION II.F
FLOOD PROTECTION DEVICE REPORT

Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

II.F.2 SUBSURFACE INVESTIGATION REPORT

In 1969, TDCJ contracted with Trinity Engineering Testing Corporation to perform a preliminary subsurface investigation for a proposed Ellis Farm Levee structure in Walker County. The purpose of this investigation was to determine the subsurface materials and subsurface conditions present along the proposed Levee and to establish design and construction criteria for the Levee. Construction plans for the Ellis Farm Levee and pump station were prepared by Forest and Cotton, Inc. Consulting Engineers in March 1970. A copy of the Subsurface Investigation Ellis Farm Levee & Structures Walker County, Texas is provided in Attachment II.F-A. The Levee design drawings are provided under separate cover.

According to the Subsurface Investigation Report, the Ellis Farm Levee is designed to protect against a 25-year flood and extends to an elevation of 144.5 feet. This height is 5.5 feet above the top of the landfill but, is 5.5 feet below the 100-year flood elevation anticipated by FEMA. Thus, the landfill will be inundated by a 100-year storm.

However, the Levee is high enough to limit wash out of the landfill caused by rapidly moving water flowing directly over the top of the soil surface. The levee is designed to hold initial flood waters back and will act as a barrier until the flood waters rise above the 144.5-foot level. As the flood waters begin to rise above that level, the water will overflow the Levee into the protected area inside. The waters will gradually inundate the inside of the Levee until the water level inside is equal to the water level outside. Once the inside of the Levee is flooded, rapidly flowing water will occur several feet above the soil surface of the landfill. When the flood waters begin to recede, they will only recede to the top of the Levee. The water remaining inside the Levee will be removed in a controlled manner using existing flood pumps. Washout will be limited during the actual flood event and during the time the flood waters are receding.

Thus, although the Ellis Farm Levee was not designed to prevent inundation of the landfill during a 100-year storm, it will assist in limiting washout of the landfill during a 100-year flood.

According to TNRCC inspection reports and to interviews with landfill operations personnel, very little of the waste contained in the landfill is hazardous waste. Further, per the TNRCC inspection reports, the hazardous waste placed inside the landfill was ash from the burning of furniture lacquer and sawdust. In the event that some washout does occur, the impact of a release of hazardous contaminants from the limited amount of ash in this landfill would result in minimal impact to human health and the environment.

ATTACHMENT II.F-A

SUBSURFACE INVESTIGATION REPORT
ELLIS FARM LEVEE & STRUCTURES
WALKER COUNTY, TEXAS

SUBSURFACE INVESTIGATION
ELLIS FARM LEVEE & STRUCTURES
WALKER COUNTY, TEXAS

NO 579-69

TRINITY ENGINEERING
TESTING CORPORATION
3601 MANOR ROAD • AUSTIN, TEXAS

TETCO

ELLIS

NOV 29 1969

TABLE OF CONTENTS

SUBSURFACE INVESTIGATION
ELLIS FARM LEVEE AND STRUCTURES
WALKER COUNTY, TEXAS

INTRODUCTION

General: An investigation of subsurface materials and subsurface conditions for the proposed Ellis Farm Levee and Structures in Walker County, Texas, was authorized in May, 1969. The purpose of this investigation has been to determine subsurface materials and subsurface conditions present along the proposed Levee and at the sites of the Structures and to establish design and construction criteria for the Levee and Structures.

Scope of Investigation: The following investigations and engineering studies were performed in connection with the preparation of this report.

1. Core borings were drilled in order to:
    a. Determine subsurface strata present at the site.
    b. Obtain samples and cores of subsurface materials for laboratory analysis.
    c. Investigate existing in-place conditions of subsurface materials by field penetration tests.
    d. Investigate the permeability of subsurface materials by field permeability tests.
    e. Investigate groundwater conditions present at the site.

2. Samples and cores of subsurface materials were analyzed in the laboratory by:
   a. Visual examination and classification.
   b. Atterberg Limits tests.
   c. Minus 200-mesh sieve tests.
   d. Unit dry weight and moisture content tests.
   e. Unconfined compression tests.
3. The information obtained by subsurface exploration and laboratory investigations was used in engineering studies to determine desirable design and construction criteria for the Levee and Structures. Details and results of the investigation are discussed in the following paragraphs.

SUBSURFACE EXPLORATION

Subsurface materials at the site were explored by a total of 68 core borings, ranging in depth from 5.0 to 31.0 feet below the existing ground surface. Locations of the borings are shown on attached Plate I.

Undisturbed samples of the cohesive soils were obtained from the borings by thin-wall, seamless steel, Shelby tube samplers. A 2-inch O.D. split-spoon sampler was used in obtaining disturbed samples and in determining standard penetration values of the granular soils. Cores of the shale were obtained from Borings No. 14 and 18 using an NX-size double tube core barrel equipped with an insert bit. Samples and cores of subsurface materials were extracted and classified in the field. Undisturbed samples and typical NX-size cores were identified according to boring number and depth, and encased in polyethylene plastic to prevent moisture changes. Disturbed samples were identified according to boring number and depth, and placed in moisture-proof plastic bags. All samples and cores of subsurface materials were then placed in core boxes and transported to the laboratory for tests and further study.

Existing in-place conditions of subsurface materials were investigated by standard penetration tests in Borings No. 8, 9, 10, 11, 14, 15, 16, 26, 27, 61, and 66. These tests determined the resistance of the materials to penetration by a 2-inch O.D. split-spoon sampler driven by a 140-pound hammer dropping 30 inches. The number of blows of the hammer required to drive the split-spoon 12 inches (after seating the sampler 6 inches) were recorded on the field logs. Results of the standard penetration tests are shown on the attached Logs of Borings.

The borings were generally advanced their full depth or to the groundwater surface prior to using drilling fluid. The samples and holes were observed to investigate groundwater conditions. Results of these observations are shown by the notes and symbols on the attached Logs of Borings.

The permeability of the soils were investigated by field permeability tests in Borings No. 2, 8, 16, and 46. These tests were performed by placing a short section of 4-inch casing in the holes, filling the holes with water, and measuring the quantity of water required to maintain a constant water level in the casings during 5-minute periods. A sketch of the infiltration tests between boring depths is shown on attached Plate VII and the results of the field permeability tests are shown by the summary on Plate VIII.

LABORATORY INVESTIGATIONS

All samples and cores of subsurface materials from the borings were examined and classified in the laboratory. Atterberg Limits tests and minus 200-mesh sieve tests were performed on selected samples in order to establish index properties and grain size characteristics and to aid in the proper classification of the soils. Results of the classification tests are shown by the summary on attached Plate IX. Laboratory classifications of the subsurface materials are shown on the attached Logs of Borings. The soil classifications refer to the "Unified Soil Classification System" as explained on the attached Key to Classification Used on Logs.

Existing conditions of the soils at the Structures' sites were investigated by unit dry weight and moisture content tests on selected undisturbed samples. Results of these tests are shown, along with the computed air voids, by the summary on attached Plates X and XI.

Strength properties of the subsurface materials at the Structures' sites were investigated by unconfined compression tests on selected undisturbed samples and cores. Results of these tests are shown as Q_u values on attached Plates X and XI.

SUBSURFACE MATERIALS AND CONDITIONS

Specific types and depths of subsurface strata encountered at the 68 locations are shown on the attached Logs of Borings and by the Geologic Profiles on attached Plates II through VI. The borings which encountered only clays and sandy clays are tabulated as follows:

Borings No.

3
4
13
20
21
33
34
35
36
38

Borings No.

39
40
42
43
44
48
49
50
53
54

Borings No.

55
56
57
58
59
60
63
64
65
67
68

Clayey sand was encountered below the clay or sandy clay in the following borings:

Borings No.

5
6
7
8
9
10
11
14
15

Borings No.

16
17
18
19
22
23
24
25
26

Borings No.

28
29
30
37
41
45
51
52
61
62

Silty sand (SM) and sand (SP) strata were encountered (generally below the clayey sand) in the following borings:

Borings No.

1
2
8
9
10
11
12
14

Borings No.

15
16
18
23
26
27
29
41

Borings No.

45
46
47
51
52
61
66

Borings No. 14 and 18 encountered shale at depths of 19.5 and 26.0 feet below the existing ground surface.

The soils have been deposited at the site by past stream action and generally grade from clay to clayey sand to sand and gravel to the shale. Although, sand pockets and layers were encountered in the clay, the subsurface materials are generally more uniform in deposition than the soils normally encountered in alluvial deposits. The borings did not generally penetrate deep enough to reach the groundwater surface. However, groundwater was observed in the following borings:

Boring No.	Depths to Groundwater Surface (In Feet)
9	9.0
10	9.0
11	9.0
14	11.0
17	13.5
18	19.0
24	14.0
27	11.0
28	12.0
45	6.0
51	7.0
61	5.5
66	9.5

LEVEE DESIGN

Embankment Section: The maximum height of the embankment is approximately 14.0 feet, with the exception of isolated creek channels that cross the Levee alignment. Results of the unconfined compression tests on the foundation soils at the Structures indicate that the clays and sandy clays are generally very stiff to hard in consistency. Triaxial compression tests were not performed on remolded samples of the embankment materials and stability analyses have not been performed on proposed embankment sections. However, side slopes of 3 horizontal to 1 vertical can be used for the Levee embankment with adequate safety against shear failures assuming that a fair degree of compaction is obtained during placing of the clay and sandy clay fill.

The upper foundation soils at the site are relatively dense and should be subject to negligible settlement due to the construction of the Levee. Consolidation of the lower embankment soil will occur very slowly, but should be relatively small in magnitude with the proper compaction of the fill. Therefore, it is not considered necessary to provide additional fill height to compensate for future settlement of the Levee.

Seepage Control: Based on the results of the field infiltration tests, the sands have relatively low permeability coefficients. The sands are generally overlain by several feet of impervious clays and sandy clays. However, relatively thin layers of silty sand were encountered at the ground surface in Borings No. 1 and 61. It will not be necessary to use a cutoff trench under the Levee except in the areas where the silty sand occurs at the ground surface. Details of a proposed cutoff trench to be used where the silty sand occurs at the ground surface are shown on attached Plate XIII.

Details of the proposed Levee section, including the berms and drainage ditch, are shown on attached Plate XII. This section is taken at the location where the bottom of the interior drainage ditch is at its lowest elevation which would be the most critical section based on the maximum possible head differential between the water on the river side of the Levee and the bottom of the interior drainage ditch. The ratio of the head differential to the minimum length of the flow path is 6.93. This ratio is greater than the desired 5.0 and should provide adequate protection against water on the river side creating boils and piping of the sand in the interior drainage ditch. The proposed Levee section, berm sections, and limiting slopes for excavation of the ditches should be adequate to eliminate problems with respect to seepage under the Levee section. However, it is suggested that creek channels on the river side of the Levee be backfilled up to the required bottom of the river side drainage ditches for a distance of 100.0 feet away from the river side drainage ditch as a further precaution against flood water entering the exposed sand stratum.

At least three seepage collars should be provided for each culvert and conduit that is constructed under the Levee.

When the water level in the land side drainage ditch is lowered rapidly, boils are likely to occur in the sand strata where they are exposed in the channel. Sloughing slides in the channel slopes will occur along with the sand boils. These sand boils will be created by an excessive hydrostatic pressure on the water in the sand and will not necessarily be influenced by seepage under the Levee. These sand boils will be discussed in greater detail under DITCH EXCAVATION.

EMBANKMENT CONSTRUCTION

Materials Selection: The main Levee embankment and cutoff trench should be constructed using the clays, sandy clays, and clayey sand. Where it is necessary to excavate the silty sands and sands in the ditch excavation, these materials may be used in constructing berms.

Embankment Foundation Preparation: The area to be covered by the embankment should be cleared, grubbed, and stripped of all vegetation. Prior to the placement of fill material, the entire fill area should be scarified to insure a satisfactory bond between the existing soil and the fill material.

Fill Placing and Compaction: The fill material should be placed in horizontal layers not exceeding 12 inches in thickness. Since a high degree of compaction will not be required (due to the relatively flat slopes of the Levee and to the generally low height of the fill section), adequate compaction of the fill material can be obtained by specifying equipment compaction and by eliminating excessively wet material from the fill section. Care should be exercised during the fill placing operations to insure proper bond between individual layers. Where the surface of a compacted layer is too smooth to bond properly with a succeeding layer, the surface of the compacted layer should be scarified.

DITCH EXCAVATION

The excavation for the drainage ditches will generally be in the clays and sandy clay soils. However, the profile of the proposed bottom of the drainage ditches indicate that the excavation will penetrate near or below the waterbearing soil in the vicinity of Borings No. 9, 10, 11, 14, 27, 28, 45, 61, and 66. It will be necessary to lower the groundwater surface below the proposed excavation grade prior to removing the sand. The sand is generally fine-grained and attempts to excavate below the groundwater surface will result in the sand and water flowing back into the excavation. The surface of the groundwater fluctuates with the seasons and it appears desirable to investigate the groundwater conditions (at the boring locations where groundwater was encountered during the core drilling operations) at the start of construction and prior to excavation of the ditches. It will probably be possible to lower the groundwater surface in the sand zones by pumping from trenches or sumps which are lined with filter material to keep the holes open during the dewatering operations. Where the silty sand and sand is penetrated by the ditch excavation, the sand will become saturated when the ditches are filled with water and with a rapid drawn-down of the water surface (by pumping from the interior drainage ditch) the hydrostatic head in the sand zone will probably not be reduced as rapidly as the hydrostatic head on the water in the ditches. The excess hydrostatic head on the water in the sand will create sand boils and slides in the ditch slopes similar to the upward movement of the sand which will occur after the ditches have been excavated and dewatering operations are ceased during the construction operations. The sand boils and slides will result in obstructions in the ditches with some ponding of the water and these mounds will likely be washed downstream during the next flow of water in the ditches. One method that appears desirable to prevent the sand boils and to protect the channel sections is to provide drainage material (12 inches of pit run sand and gravel under 18 inches of riprap stone) over the ditch sections which encounter the silty sand and sand. The sand and gravel should be fine enough to prevent removal of the fine silty sand particles as the water drains upward and the riprap stone and the gravel filter should provide adequate weight to prevent upward movement of the material.

STRUCTURAL FOUNDATION DESIGN AND CONSTRUCTION

Pump Station: Specific types and depths of subsurface strata encountered at the Pump Station site are shown on the attached Log of Boring No. 18. A profile of the existing ground surface at Station 596+00 indicates that the ground surface near the boring location is at approximate Elevation 133.5. Available information indicates that the base of the Pump Station will be near Elevation 121.0 (or approximately 12.5 feet below the presently existing ground surface).

Results of the unconfined compression tests indicate the relative consistency of the cohesive soils ranges from very stiff near the 10.0-foot depth to soft to medium between depths of 13.0 and 18.0 feet. Results of the standard penetration tests indicate that the tan sand between depths of 19.0 and 26.0 feet should be classed as having a low medium relative density. The subsurface materials have been evaluated with respect to supporting the Pump Station by pile and pier foundations on the lower shale and by a slab foundation on the soil near the 12.5-foot depth. Details of these evaluations are discussed in the following paragraphs.

Based on considerations of strength properties and settlement characteristics of subsurface materials, the dark gray shale below the 26.0-foot depth will provide the most desirable support for downward loads of the Pump Station. Creosoted timber piles will provide the most economical means of transmitting structural loads to the shale, unless it is necessary to penetrate the shale a considerable depth in order to obtain resistance to uplift. Creosoted timber pile foundations may be designed based on a safe design load of 15.0 tons per pile. A pile tip elevation equal to 29.0 feet below the presently existing ground surface at the boring location may be used in estimating the pile lengths, and resistances indicating the safe design load by a dynamic pile driving formula will probably be encountered prior to penetrating the shale 3.0 feet.

In the event that it is desirable to penetrate the shale in order to obtain resistance to uplift on the structure, auger-excavated straight shaft piers will provide the most desirable means of penetrating the shale. Based on consideration of obtaining resistance to uplift, it is desirable that the piers penetrate the shale approximately 10.0 feet. An allowable unit load of 4.6 tons per square foot in end bearing may be used in the design of the pier foundations. A side friction value of 1.0 ton per square foot of contact surface may be used between straight shaft piers and the shale from 2.0 feet below the surface of the shale down, in supporting downward loads. A side friction value of 0.5 ton per square foot may be used between the straight shaft piers and the shale in resisting uplift. Temporary steel casings will be required from the excavation grade down into the shale in order to seal out groundwater and prevent caving of the granular soils during the pier drilling operations.

The soils below the 12.5-foot depth are much less desirable for supporting the Pump Station than the underlying shale. However, the unit loads on the base of the Pump Station may make it desirable to use the more economical slab foundation on the soil near the 12.5-foot depth. Based on the results of the strength tests on the soil below the 12.5-foot depth, it is recommended that the unit loads on the soil not exceed 1,500 pounds per square foot.

Based on the type of soils encountered at the site, an equivalent fluid pressure of 48 pounds per cubic foot may be used as the horizontal component of the active earth pressure on the Pump Station walls.

Based on the groundwater conditions when the boring was drilled, groundwater at the site would not create hydrostatic uplift on the Pump Station. Information regarding the maximum water surface elevations and the proposed operating procedures of the Pump Station is not available in this office. However, hydrostatic uplift on the structure should be considered if there is to be an appreciable differential in the water surface elevation between the inside and outside of the structure.

Culverts: Subsurface materials encountered at the locations of the proposed culverts are represented by the following borings:

Boring No.	Culvert Station	Culvert Size Width x Depth	Flow Line Elevation Inlet and Outlet	
11	538+50	5' x 4'	127.5	127.0
14	568+50±	5' x 5'	126.5	126.0
24	655+70±	4' x 4'	125.5	125.0
33	739+50	5' x 4'	127.5	127.0
61	1025+00	4' x 3'	133.0	132.5
66	1066+00	4.5' x 4.5'	132.0	131.5

Additional data regarding the ground surface elevations, groundwater surface elevations, allowable bearing on the soil below the flow line elevation, and the elevation of the top of the Levee are shown on attached Plate XIV. The groundwater surface in Borings No. 11 and 61 were near the flow line elevation when the core borings were drilled. Depending on the groundwater conditions at the time of construction, dewatering will likely be required in order to perform the excavation for the culvert at Station 1025+00 and may be required at other locations. Although, the allowable bearing capacities of the soils below the flow line elevations are relatively low at some of the culvert locations, special precautions (other than lowering the groundwater surface below the bases of the excavations) do not appear necessary with respect to settlement or bearing capacity of the subsurface materials below the culverts. The groundwater surface should be lowered to at least 2.0 feet (preferably 3.0 feet) below the excavation grade well in advance of completing the excavation operations in order to avoid excessive disturbance of the foundation soils. At least three seepage collars should be provided for each culvert or conduit that is placed through or below the Levee.

CONCLUSIONS

Based on the results of subsurface explorations, laboratory investigations, and engineering studies, it is concluded that:

1. The proposed Levee section, berms, and limiting excavation slopes will provide adequate safety against shear failures, seepage problems, and excessive settlement of the embankment and foundation.

However, a shallow cutoff trench should be provided in the areas where the silty sand occurs at the ground surface, as an additional protection against seepage.

2. The clays, sandy clays, and clayey sands should be utilized in construction of the Levee and cutoff trench.

3. The fill should be placed in approximate horizontal layers not exceeding 12 inches in thickness.

4. Adequate compaction of the fill can be obtained using equipment compaction provided that excessively wet soils are not used in the fill area.

5. Care should be exercised during the fill placing operations to insure proper bond between individual layers.

6. Dewatering of the sand and silty sand will be required in some areas of the drainage ditches prior to the final excavation operations.

7. Sand boils, along with sloughing and slides in the ditch slopes, will occur where the excavation grade of the drainage ditches is below the surface of the waterbearing sand when construction dewatering operations are halted and when the water surface in the drainage ditches is rapidly lowered.

8. A proposed ditch lining for eliminating the sand boils in the drainage ditches is discussed on preceding page 11.

9. Design and construction criteria for the proposed Pump Station are discussed on preceding pages 11 through 14.

10. The groundwater surface in the culvert areas should be lowered to at least 2.0 feet (preferably 3.0 feet) prior to the final excavation operations for the culverts in order to avoid excessive disturbance of the foundation soils. Seepage cutoff collars should be provided for all culverts and conduits that are constructed in or below the Levee.

Respectfully submitted,

TRINITY ENGINEERING TESTING CORPORATION

M.Q. Stapp, Jr.

M. Q. Stapp, Jr., P.E.
Chief Engineer
Soils and Foundations Division

11158

112169

APPENDIX

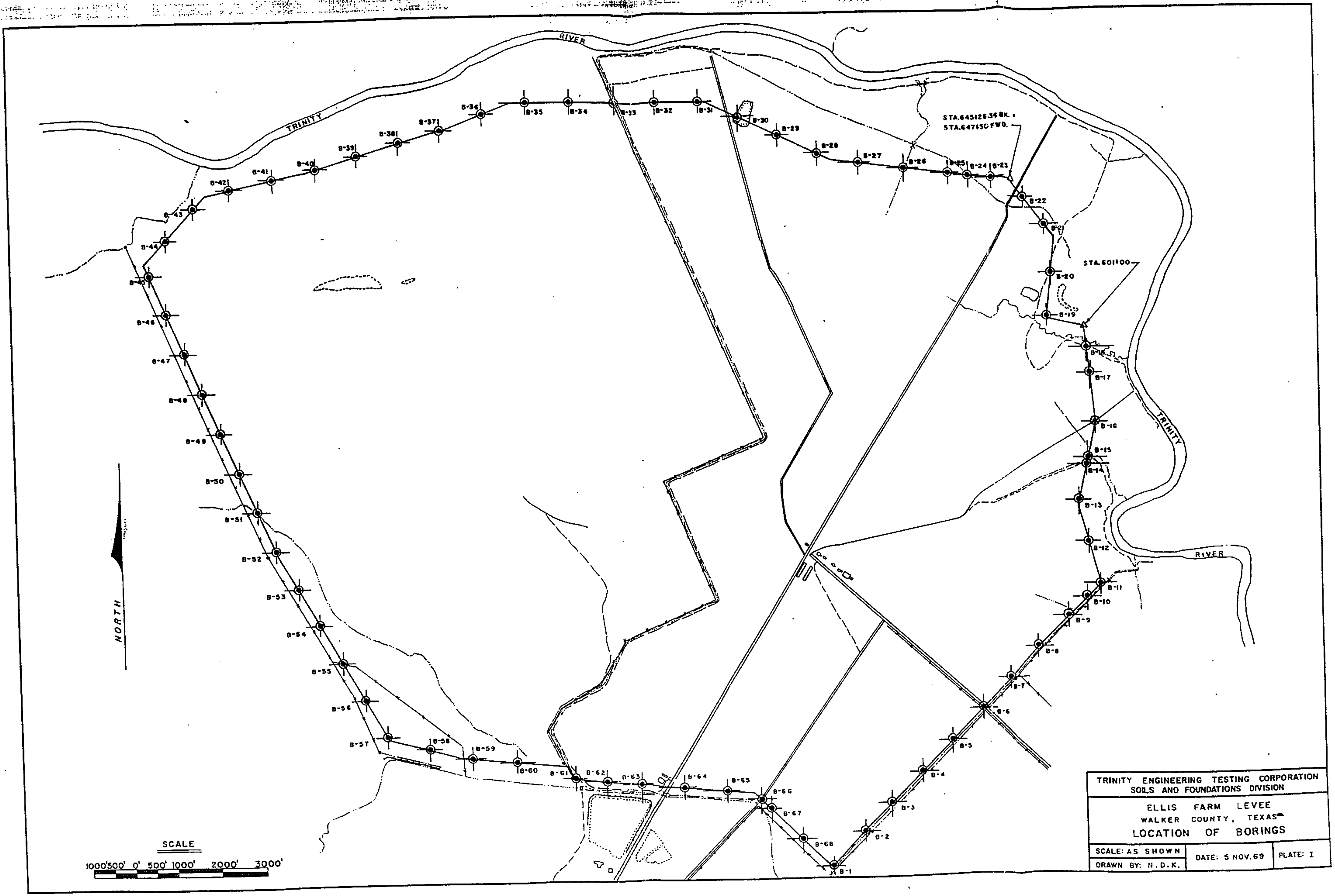
SUBSURFACE INVESTIGATION
ELLIS FARM LEVEE AND STRUCTURES
WALKER COUNTY, TEXAS

FOR

TEXAS DEPARTMENT OF CORRECTIONS
HUNTSVILLE, TEXAS

AND

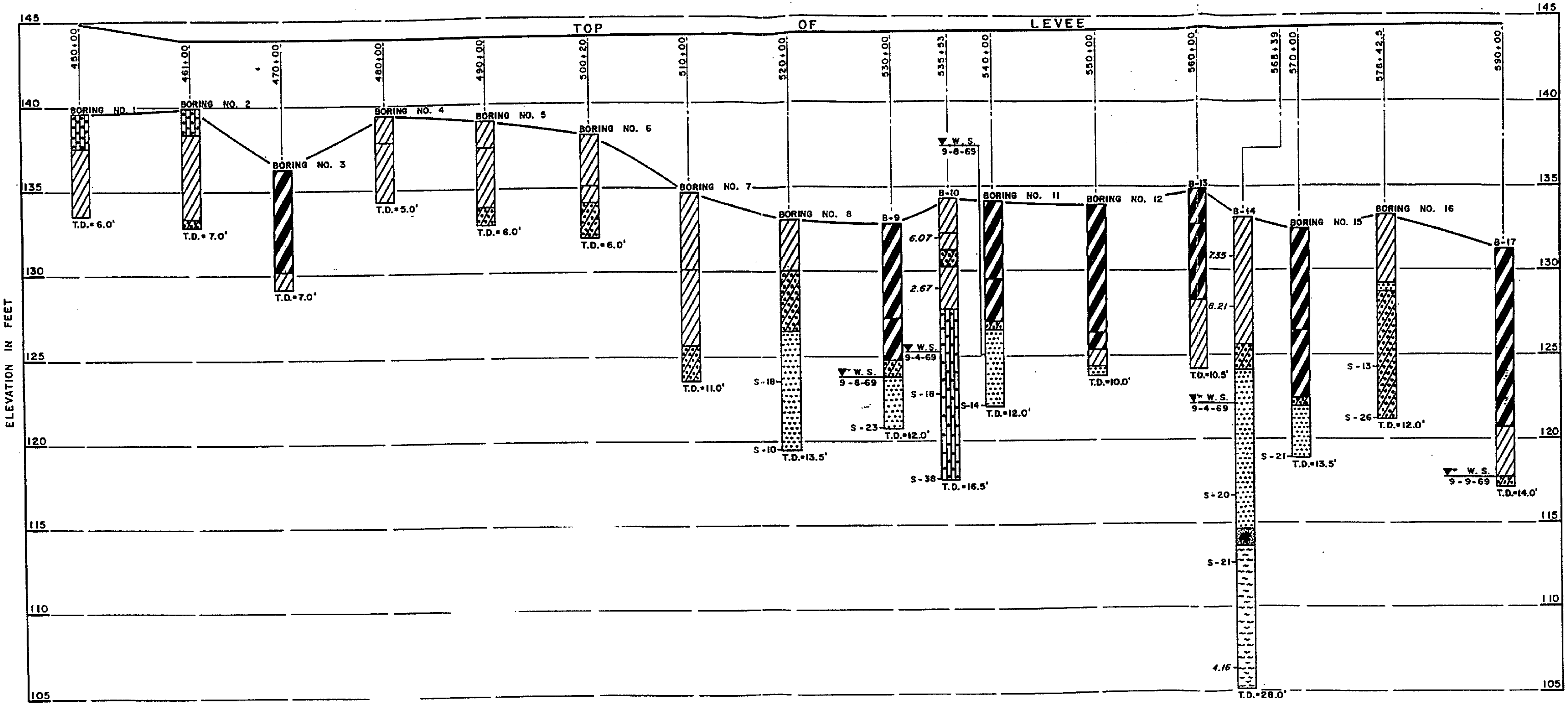
FORREST & COTTON, INC.
CONSULTING ENGINEERS
AUSTIN, TEXAS



TRINITY ENGINEERING TESTING CORPORATION
SOILS AND FOUNDATIONS DIVISION

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS
LOCATION OF BORINGS

SCALE: AS SHOWN
DRAWN BY: N.D.K.
DATE: 5 NOV. 69
PLATE: I



NOTES:

S-10 —— Denotes Standard Penetration Test.
—— Number of blows of a 140-pound hammer dropped 30 in[illegible]quired to drive a 2-inch O.D. split spoon sampler 12 inches [illegible]ne material.
4.16 —— Slanted numbers indicate Unconfined Compressive Strengths in Tons per Square Foot.
▼ W. S. 9-9-69 —— Indicates Ground Water Surface and date observed.

For Complete Material Descriptions See Logs Of Borings.

LEGEND

- ▦ Silty Sand
- ▨ Sandy Clay
- ▩ Clayey Sand
- ▰ Clay
- ⁘ Sand
- ▓ Gravel
- ≈ Shale

TRINITY ENGINEERING TESTING CORPORATION
SOILS AND FOUNDATIONS DIVISION

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS
GEOLOGIC PROFILE

SCALE: AS SHOWN
DRAWN BY: D. W. C.
DATE: 4 NOV 69
PLATE: II

NOTES:

Denotes Standard Penetration Test.

S-14 — Number of blows of a 140-pound hammer dropped 30 inches required to drive a 2-inch O.D. split spoon sampler 12 inches into the material.

6.05 — Slanted numbers indicate Unconfined Compressive Strengths in Tons per Square Foot.

▼ W.S. 9-9-69 — Indicates Ground Water Surface and date observed.

For Complete Material Descriptions See Logs Of Borings.

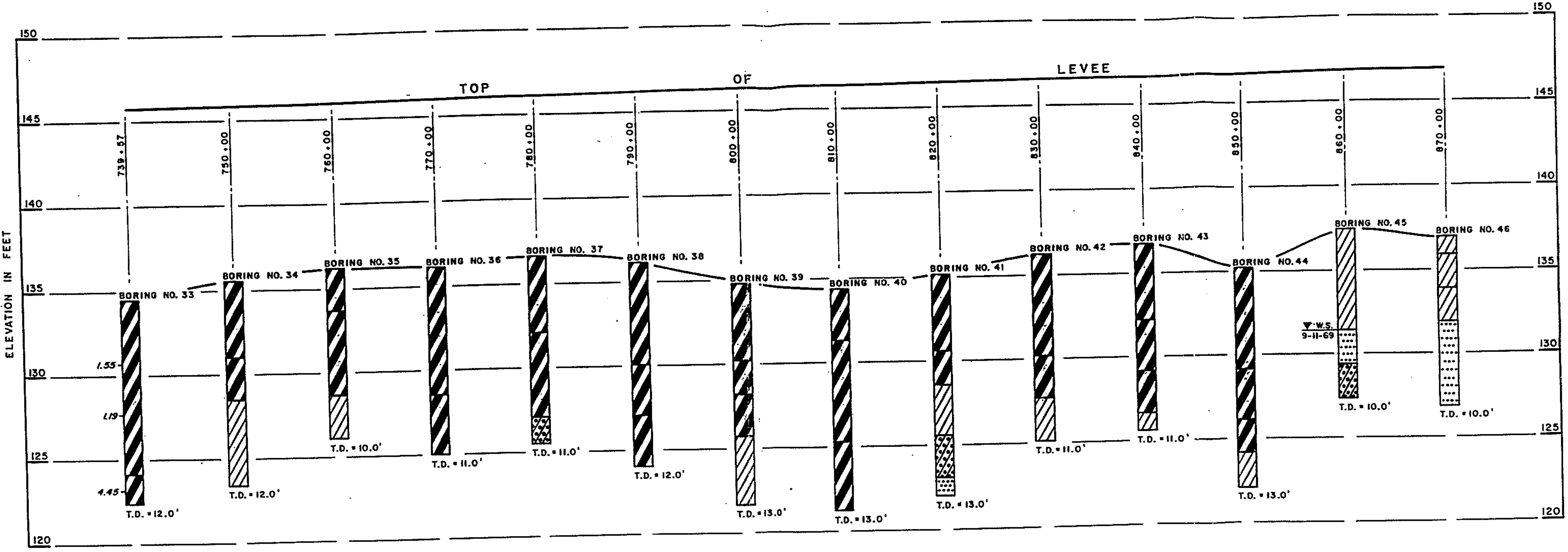
LEGEND

- ▨ Clay
- ▨ Sandy Clay
- ▨ Clayey Sand
- ▨ Sand
- ▨ Shale

TRINITY ENGINEERING TESTING CORPORATION
SOILS AND FOUNDATIONS DIVISION

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS
GEOLOGIC PROFILE

SCALE: AS SHOWN DRAWN BY: D. W. C.	DATE: 5 NOV 69	PLATE: III



NOTES:

1.55 —— Slanted numbers indicate Unconfined Compressive Strengths in Tons per Square Foot.

▼ W.S. 9-11-69 —— Indicates Ground Water Surface and date observed.

For Complete Material Descriptions See Logs Of Borings.

LEGEND

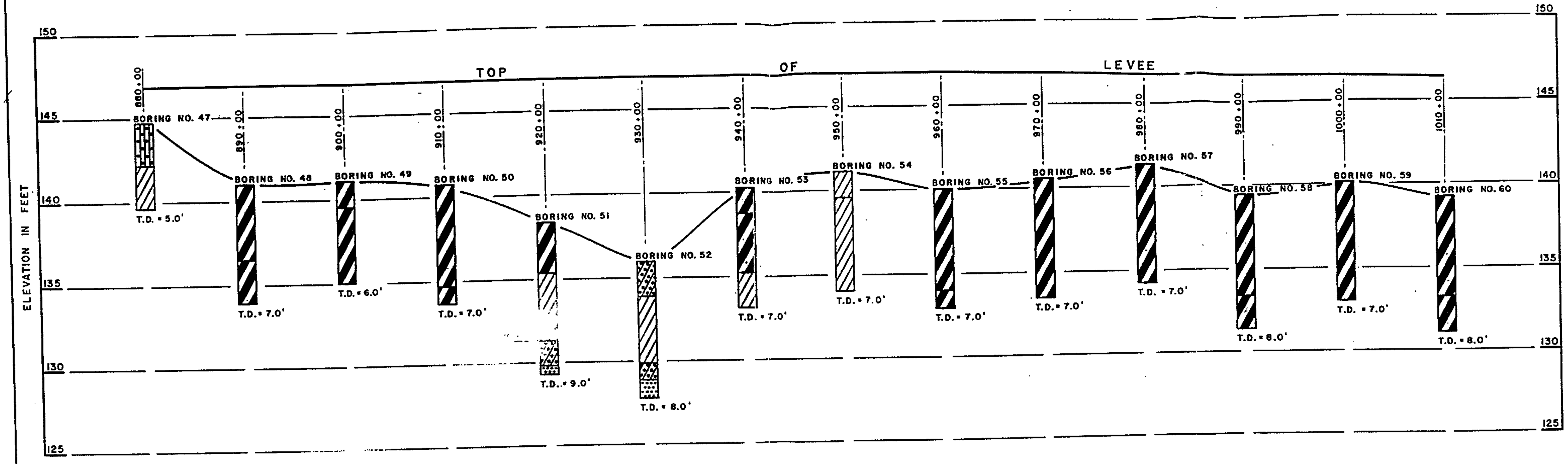
- ▨ Clay
- ▧ Sandy Clay
- ▩ Clayey Sand
- ⠿ Sand

TRINITY ENGINEERING TESTING CORPORATION
SOILS AND FOUNDATIONS DIVISION

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS

GEOLOGIC PROFILE

SCALE: AS SHOWN DRAWN BY: E. Z. C.	DATE: 6 NOV 69	PLATE: IV



NOTES:

▼ W.S. 9-11-69 — Indicates Ground Water Surface and date observed.

For Complete Material Descriptions See Logs Of Borings.

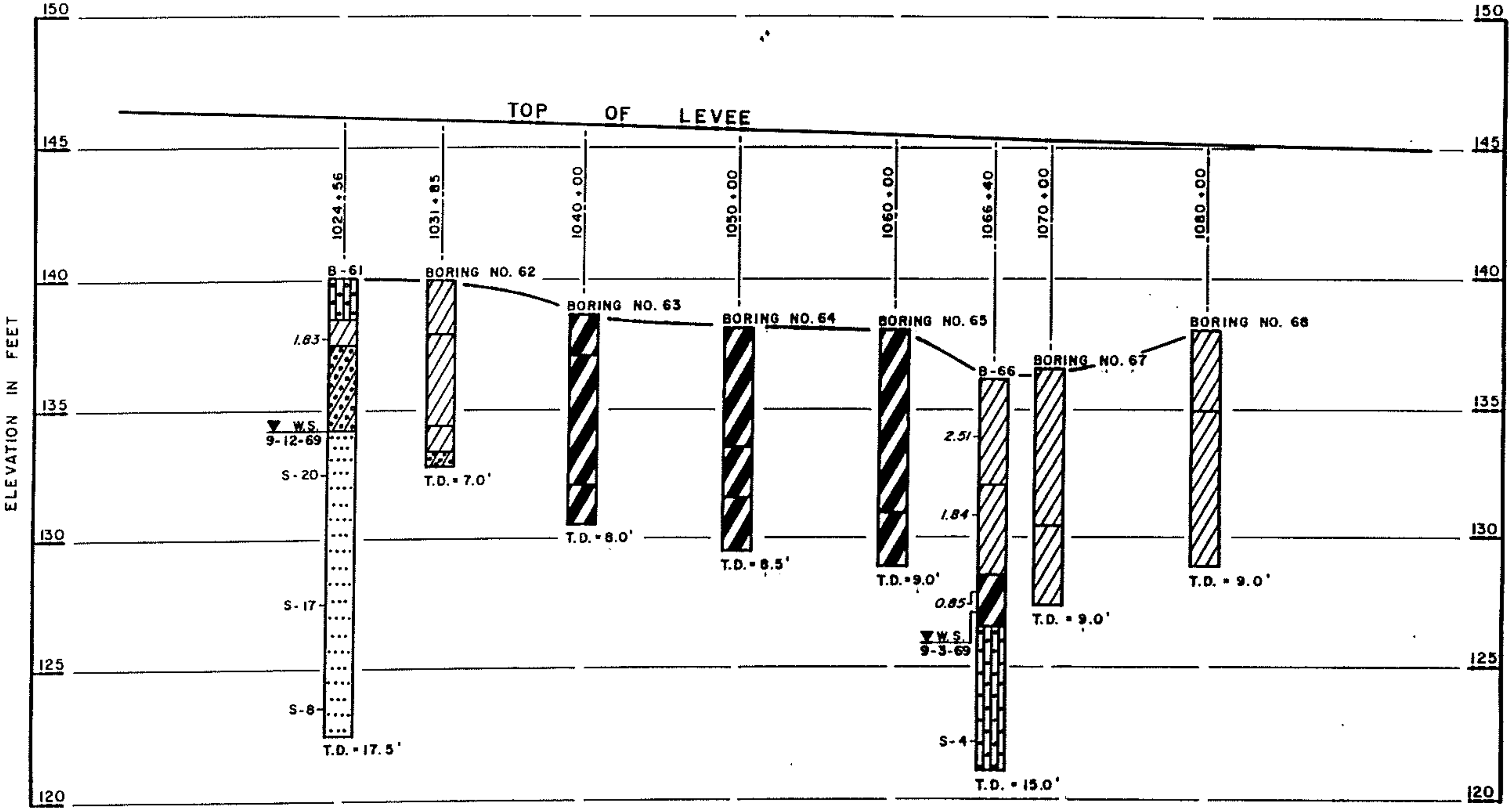
LEGEND

- ▨ Clay
- ▨ Sandy Clay
- ▨ Clayey Sand
- ▨ Silty Sand
- ▨ Sand

TRINITY ENGINEERING TESTING CORPORATION
SOILS AND FOUNDATIONS DIVISION

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS
GEOLOGIC PROFILE

SCALE: AS SHOWN
DRAWN BY: E. Z. C.
DATE: 6 NOV 69
PLATE: V



NOTES:

S-17 — Denotes Standard Penetration Test.
Number of blows of a 140-pound hammer dropped 30 inches required to drive a 2-inch O.D. split spoon sampler 12 inches into the material.

1.83 — Slanted numbers indicate Unconfined Compressive Strengths in Tons per Square Foot.

▼ W.S. 9-12-69 — Indicates Ground Water Surface and date observed.

For Complete Material Descriptions See Logs Of Borings.

LEGEND

▦ Silty Sand
▨ Sandy Clay
▰ Clay
▧ Clayey Sand
⁘ Sand

TRINITY ENGINEERING TESTING CORPORATION
SOILS AND FOUNDATIONS DIVISION

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS
GEOLOGIC PROFILE

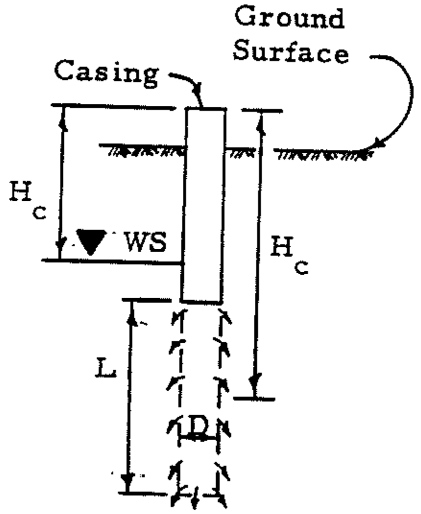
SCALE: AS SHOWN DRAWN BY: E. Z. C.	DATE. 4 NOV 69	PLATE: VI

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS

SAMPLE PERMEABILITY COMPUTATIONS

Infiltration Test between Boring Depths

$$K = \frac{q \ln\left[\frac{ML}{D} + \sqrt{1 + \left(\frac{ML}{D}\right)^2}\right]}{2 \pi L H_c} \times 0.508$$



Where:

k = Coefficient of permeability, cm/sec.

q = Inflow rate, Cu. Ft. /min.

M = Transformation ratio ≈ 1

L = Length in material tested, ft.

D = Diameter, ft.

H_c = Constant Piezometer head, ft. (Depth to W. S. or Depth to Midpoint of L)

Since $\frac{L}{D}$ is large and M = 1 Equation may be written:

$$k = \frac{q \ln\left[\frac{2L}{D}\right]}{2\pi L H_c} \times 0.508$$

Example: Boring No. 46, Test from 5.0' to 10.0'

q = 0.0986 Cu. Ft. /Min.

D = 0.29 feet

L = 5.0 feet

H_c = 9.50 (Depth to W. S.)

$$k = \frac{0.0986 \times \log_n \left[\frac{2 \times 5}{0.29}\right]}{2 \times \pi \times 5 \times 9.50} \times 0.508 = \frac{0.3491}{298.30} \times 0.508$$

$$k = 5.94 \times 10^{-4} \text{ Cm/Sec.}$$

ELLIS FARM LEVEE
WALKER COUNTY, TEXAS

SUMMARY OF FIELD PERCOLATION TESTS

Boring No.	Test Depth, Ft.	Total Water Head, Ft.	Water Loss in GPM	Coefficient of Permeability, k cm./sec.
2	1.3- 7.0	6.35	0.225	$2.46x10^{-4}$
2	1.3- 7.0	6.35	0.200	$2.18x10^{-4}$
2	1.3- 7.0	8.35	0.100	$0.83x10^{-4}$
2	1.3- 7.0	8.35	0.100	$0.83x10^{-4}$
8	6.5-13.5	12.25	0.350	$1.65x10^{-4}$
8	6.5-13.5	12.25	0.150	$0.71x10^{-4}$
16	1.5-10.0	8.00	0.125	$0.78x10^{-4}$
16	1.5-10.0	8.00	0.100	$0.62x10^{-4}$
16	1.5-10.0	10.00	0.110	$0.55x10^{-4}$
16	1.5-10.0	10.00	0.100	$0.50x10^{-4}$
46	5.0-10.0	9.50	0.738	$5.94x10^{-4}$
46	5.0-10.0	9.50	0.475	$3.83x10^{-4}$
46	5.0-10.0	11.50	0.400	$2.66x10^{-4}$
46	5.0-10.0	11.50	0.400	$2.66x10^{-4}$

ELLIS FARM LEVEE

WALKER COUNTY, TEXAS

SUMMARY OF CLASSIFICATION TESTS

Boring No.	Depth in Feet	Liquid Limit %	Plasticity Index %	% Passing 200-Mesh Sieve	Classification	Description
2	0.0 - 1.0	----	----	46.8	(SM)	Gray Silty Sand
8	4.5 - 6.0	----	----	42.1	(SC)	Light Gray Clayey Sand
10	10.0 -11.5	----	---	15.6	(SM)	Tan Silty Sand
16	6.0 - 7.5	----	----	27.6	(SC)	Tan Clayey Sand
17	3.0 - 4.5	92.6	76.9	----	(CH)	Brown Clay
27	3.0 - 4.5	112.0	80.8	----	(CH)	Dark Gray Clay
28	6.0 - 7.5	59.6	40.9	----	(CH)	Yellow and Light Gray Clay
32	1.5 - 3.0	79.0	53.5	----	(CH)	Gray Clay
42	6.0 - 7.5	63.2	41.8	----	(CH)	Yellow and Light Gray Clay
45	3.0 - 4.5	37.5	25.3	----	(CL)	Gray Sandy Clay
47	0.0 - 1.5	----	----	32.2	(SM)	Tan Silty Sand
61	3.0 4.5	34.5	16.6	----	(SC)	Yellow and Light Gray Clayey Sand
66	10.5 -12.0	----	----	45.3	(SM)	Light Gray Silty Sand

ELLIS FARM LEVEE

WALKER COUNTY, TEXAS

SUMMARY OF UNIT WEIGHT, MOISTURE CONTENT AND UNCONFINED COMPRESSION TEST RESULTS

Boring No.	Depth in Feet	U.D.W. Lbs./Cu.Ft.	M.C. %	Air Voids %	Q_u T/Sq.Ft.	Description
10	1.5 - 3.0	110.5	10.0	15.6	6.07	Yellow and Light Gray Sandy Clay
10	4.5 - 6.0	107.9	21.0	0.0	2.67	Yellow and Light Gray Sandy Clay
11	1.5 - 3.0	106.4	17.3	9.5	4.01	Dark Gray Clay
11	4.5 - 6.0	109.1	17.0	5.7	2.50	Yellow and Light Gray Clay
14	1.5 - 3.0	108.0	15.6	7.8	7.35	Yellow and Light Gray Sandy Clay
14	4.5 - 6.0	120.8	8.9	9.9	8.21	Yellow and Light Gray Sandy Clay
14	26.5 -27.0	-----	----	----	4.16	Dark Gray Shale
18	9.0 -10.5	112.2	16.0	3.5	3.47	Yellow and Light Gray Sandy Clay
18	13.5 -15.0	104.7	9.9	20.3	0.35	Yellow and Light Gray Clayey Sand
18	15.0 -16.5	90.9	15.0	23.3	0.85	Yellow and Light Gray Clayey Sand
18	16.5 -18.0	104.9	21.6	0.4	0.35	Yellow and Light Gray Clayey Sand
18	30.5 -31.0	-----	----	----	6.05	Dark Gray Shale
24	3.0 - 4.5	102.4	19.3	7.7	5.45	Dark Gray Clay
24	6.0 - 7.5	105.9	18.4	6.1	4.47	Dark Gray Clay
24	10.5 -12.0	112.9	14.4	5.8	4.95	Yellow and Light Gray Sandy Clay
24	15.0 -16.5	107.9	20.2	0.0	0.33	Yellow and Light Gray Clayey Sand

ELLIS FARM LEVEE

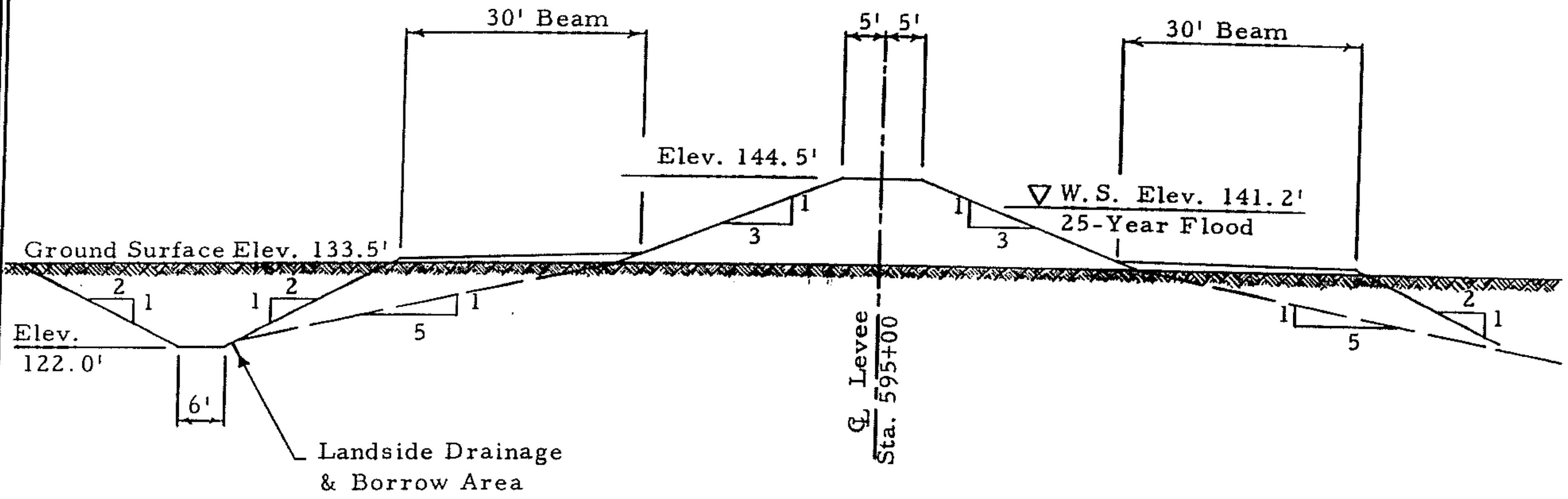
WALKER COUNTY, TEXAS

SUMMARY OF UNIT WEIGHT, MOISTURE CONTENT AND UNCONFINED COMPRESSION TEST RESULTS

Boring No.	Depth in Feet	U.D.W. Lbs./Cu.Ft.	M.C. %	Air Voids %	Q_u T/Sq.Ft.	Description
33	3.0 - 4.5	90.4	27.9	6.1	1.55	Dark Gray Clay
33	6.0 - 7.5	96.1	26.1	2.9	1.19	Dark Gray Clay
33	10.5 -12.0	105.4	19.0	5.5	4.45	Yellow and Light Gray Clay
61	1.5 - 3.0	103.1	17.7	8.6	1.83	Yellow and Light Gray Clay
66	1.5 - 3.0	106.9	17.7	5.2	2.51	Dark Gray Sandy Clay
66	4.5 - 6.0	105.2	19.1	4.3	1.84	Yellow and Light Gray Sandy Clay
66	7.5 - 9.0	99.9	22.5	4.8	0.85	Yellow and Light Gray Clay

ELLIS FARM LEVEE

WALKER COUNTY, TEXAS

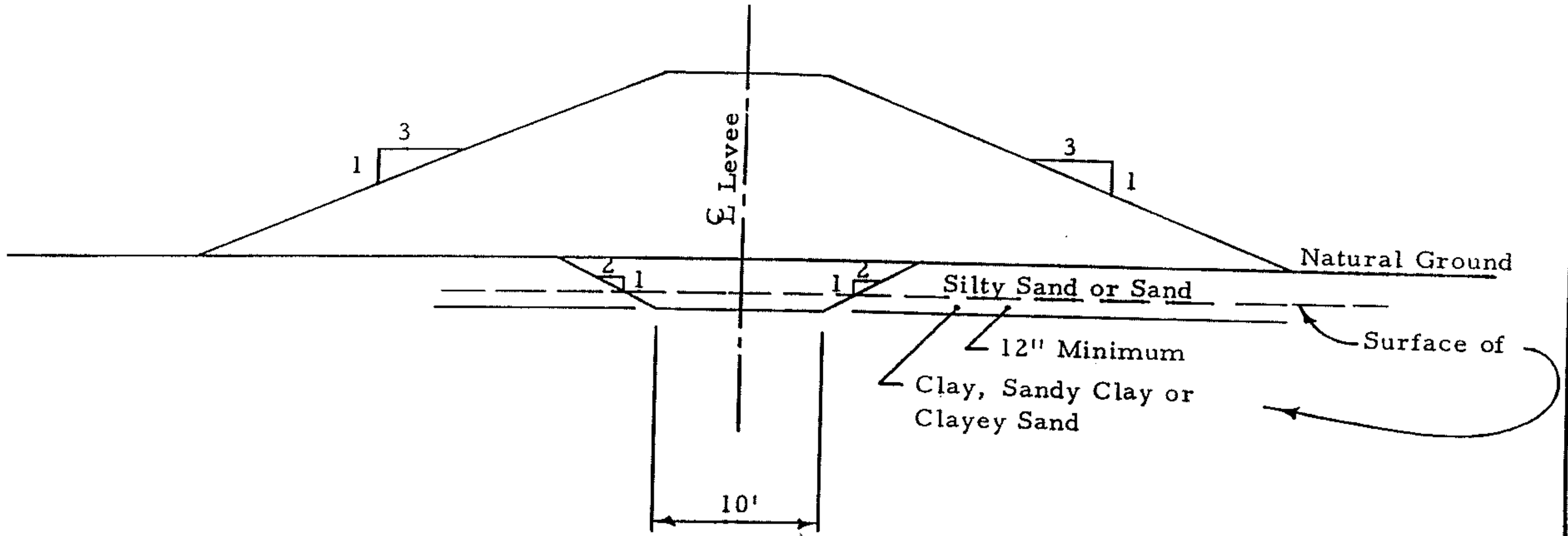


PROPOSED LEVEE SECTION

1" = 20'

ELLIS FARM LEVEE

WALKER COUNTY, TEXAS



PROPOSED CUTOFF TRENCH

(For Areas Where Sand or Silty Sand Layers Occur At The Ground Surface)

1" = 10'

Plate XIII

ELLIS FARM LEVEE

WALKER COUNTY, TEXAS

TABULATION OF CULVERT DATA

Boring No.	Station No.	Ground Surface Elevation	F. L. Elev.	W. S. Elev.	Allowable Bearing	Elevation Top Levee
11	538+50	134.0	127.0	125.0	1,500	144.0
14	568+50 ±	133.0	126.0	122.0	2,300	144.2
24	655+70 ±	133.0	125.0	119.0	6,600	145.0
33	739+50	134.0	127.0	-----	3,000	145.8
61	1025+00	139.0	132.5	133.3	2,300	146.2
66	1066+00	137.0	131.5	128.0	2,000	145.4

KEY TO CLASSIFICATION USED ON LOGS

MAJOR DIVISIONS			GROUP SYMBOLS		DESCRIPTIONS
COARSE-GRAINED SOILS More Than Half of Material is LARGER Than No. 200 Sieve Size.	GRAVELS More Than Half of Coarse Fraction is LARGER Than No. 4 Sieve Size.	Clean Gravels (Little or no Fines)	GW	⁘	Well-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines.
			GP	⁘	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines.
		Gravels With Fines (Appreciable Amount of Fines)	GM	▥	Silty Gravels, Gravel-Sand-Silt Mixtures.
			GC	▨	Clayey Gravels, Gravel-Sand-Clay Mixtures.
	SANDS More Than Half of Coarse Fraction is SMALLER Than No. 4 Sieve Size.	Clean Sands (Little or no Fines)	SW	⁘	Well-Graded Sands, Gravelly Sands, Little or no Fines.
			SP	⁘	Poorly-Graded Sands, Gravelly Sands, Little or no Fines.
		Sands With Fines (Appreciable Amount of Fines)	SM	▥	Silty Sands, Sand-Silt Mixtures.
			SC	▨	Clayey Sands, Sand-Clay Mixtures.
FINE-GRAINED SOILS More Than Half of Material is SMALLER Than No. 200 Sieve Size.	SILTS and CLAYS	Liquid Limit Less Than 50	ML	▥	Inorganic Silts & Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity.
			CL	▨	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays.
			OL	▥	Organic Silts & Organic Silty Clays of Low Plasticity.
	SILTS and CLAYS	Liquid Limit Greater Than 50	MH	▥	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils, Elastic Silts.
			CH	▨	Inorganic Clays of High Plasticity, Fat Clays.
			OH	▨	Organic Clays of Medium to High Plasticity, Organic Silts.
Highly Organic Soils			Pt	≋	Peat & Other Highly Organic Soils

Ref. (Unified Soil Classification System) Corps of Engineers, U.S. ARMY, T.M. NO. 3-357

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 1
LOCATION: 450 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Tan Silty Sand (SM)				
5				Yellow and Light Gray Sandy Clay (CL)				
10				Total Depth of Boring = 6.0 Feet				

Note: Boring was advanced to 6.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 2
LOCATION: 461 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Gray Silty Sand (SM)				
5				Yellow and Light Gray Sandy Clay (CL)				
				Yellow & Light Gray Clayey Sand (SC)				
10								

Total Depth of Boring = 7.0 Feet

Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 3
LOCATION: 470 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
	▨			Yellow and Light Gray Sandy Clay w/Lignite Particles (CL)				
10								

Total Depth of Boring = 7.0 Feet

Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 4
LOCATION: 480 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Gray Sandy Clay (CL)				
5	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				

Total Depth of Boring = 5.0 Feet

Note: Boring was advanced to 5.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 5
LOCATION: 490 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Gray Sandy Clay w/Yellow Streaks (CL)				
5	▨			Yellow and Light Gray Sandy Clay w/Calcareous Particles (CL)				
	⁙			Yellow and Light Gray Clayey Sand (SC)				
10				Total Depth of Boring = 6.0 Feet				

Note: Boring was advanced to 6.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 4, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 6
LOCATION: 500 + 20

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Sandy Clay (CL)				
5	▨			Yellow and Light Gray Sandy Clay w/ Lignite and Calcareous Particles (CL)				
	▨			Yellow and Light Gray Clayey Sand w/Lignite Particles (SC)				
10								
15								

Total Depth of Boring = 6.0 Feet

Note: Boring was advanced to 6.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 8, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 7
LOCATION: 510 + 00

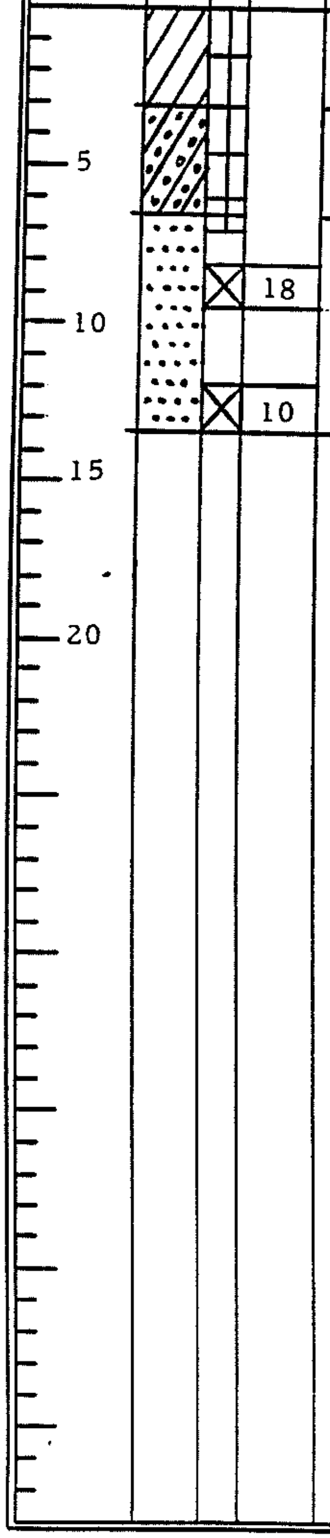
DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Sandy Clay (CL)				
5	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
10	▨			Light Gray Clayey Sand (SC) (WET)				
15				Total Depth of Boring = 11.0 Feet				

Note: Boring was advanced to 11.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 8, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 8
LOCATION: 520 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE



Dark Gray Sandy Clay (CL)

Light Gray Clayey Sand w/Yellow Streaks (SC)

Tan Sand (SP)

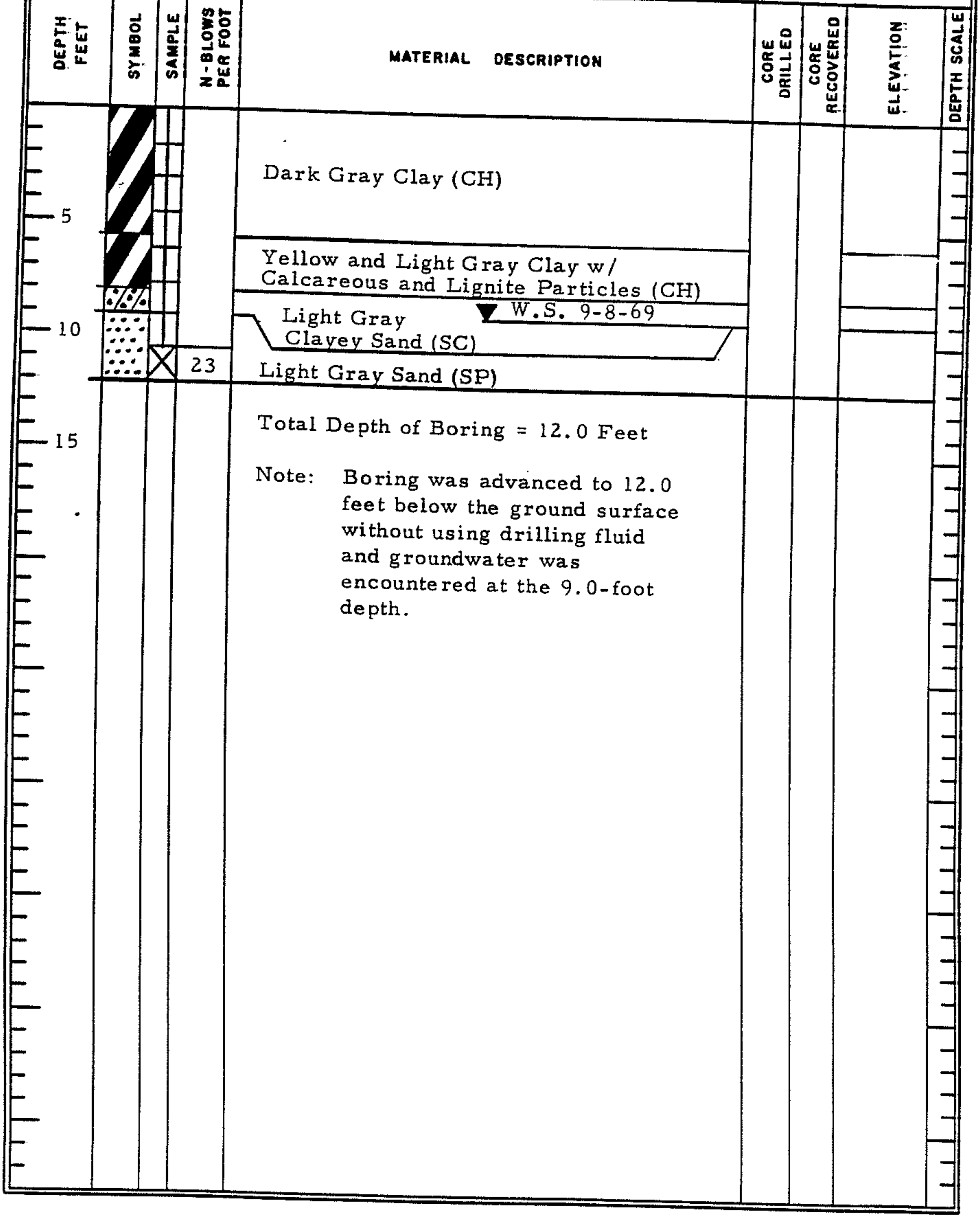
Total Depth of Boring = 13.5 Feet

Note: Boring was advanced to 7.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 8, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 9
LOCATION: 530 + 00



Dark Gray Clay (CH)

Yellow and Light Gray Clay w/ Calcareous and Lignite Particles (CH)

Light Gray Clayey Sand (SC)

Light Gray Sand (SP)

Total Depth of Boring = 12.0 Feet

Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 9.0-foot depth.

LOG OF BORING
FOR
ELLIS FARM LEVEE
(CULVERT)

DATE: September 4, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 10
LOCATION: 535 + 53

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Sandy Clay w/Yellow Streaks (CL)				
				Yellow and Light Gray Sandy Clay w/ Lignite Particles (CL)				
5				Yellow & Light Gray Clayey Sand (SC)				
				Yellow and Light Gray Sandy Clay w/ Calcareous and Lignite Particles (CL)				
10				Tan Silty Sand (SM) ▼ W.S. 9-4-69				
		☒	18					
15		☒	38					
20								

Total Depth of Boring = 16.5 Feet

Note: Boring was advanced to 9.0 feet below the ground surface prior to using drilling fluid and groundwater was encountered at the 9.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

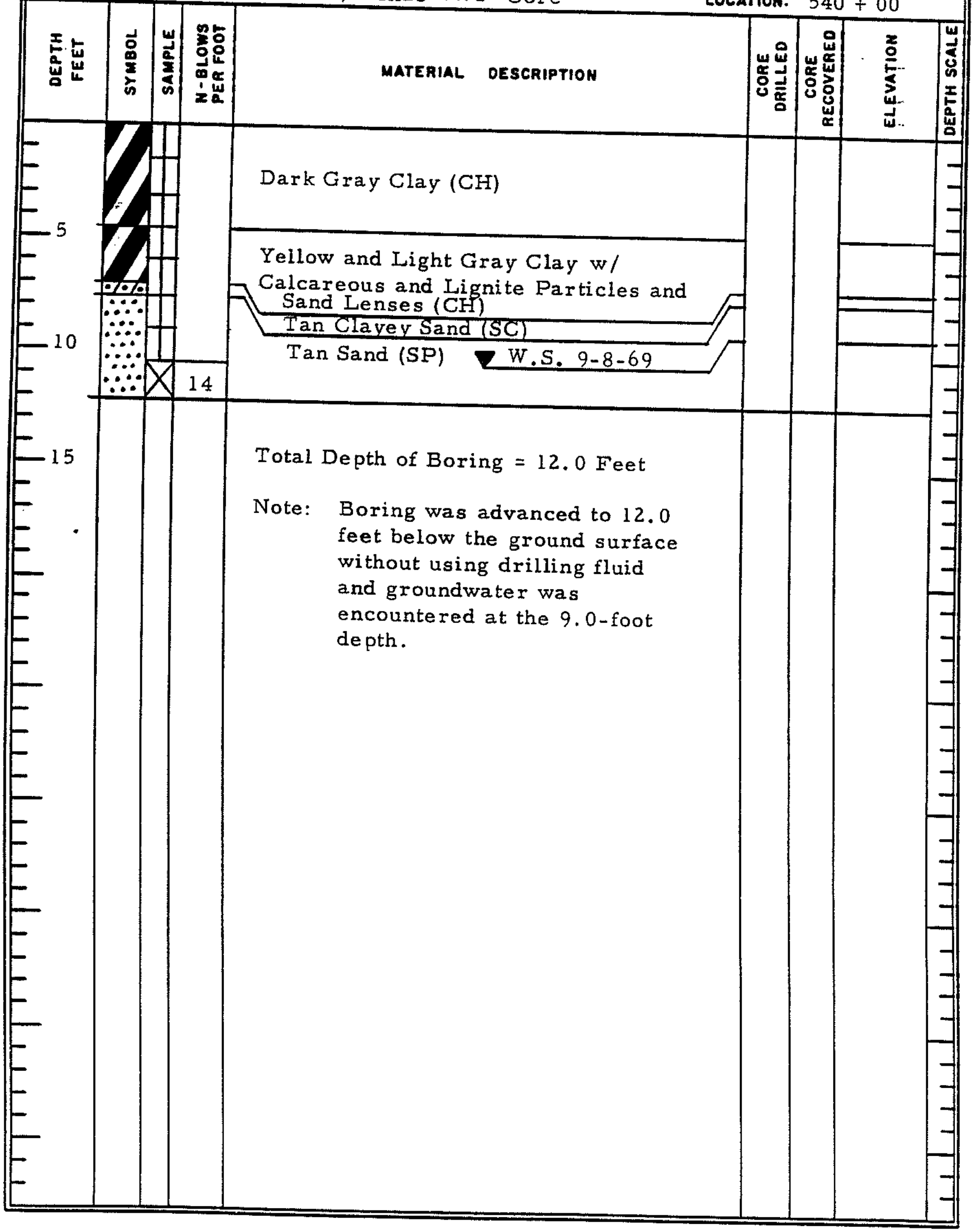
LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 8, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 11

LOCATION: 540 + 00



Dark Gray Clay (CH)

Yellow and Light Gray Clay w/ Calcareous and Lignite Particles and Sand Lenses (CH)

Tan Clayey Sand (SC)

Tan Sand (SP) ▼ W.S. 9-8-69

Total Depth of Boring = 12.0 Feet

Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 9.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 8, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 12
LOCATION: 550 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5				Dark Gray Clay w/Yellow Streaks and Lignite Particles (CH)				
				Yellow & Light Gray Clay w/Calcareous & Lignite Particles & Sand Lenses (CH)				
10				Yellow and Light Gray Sandy Clay w/ Calcareous Particles (CL)				
				Tan Sand (SP)				
15								

Total Depth of Boring = 10.0 Feet

Note: Boring was advanced to 10.0 feet below the ground surface without using drilling fluid and groundwater was not detected above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

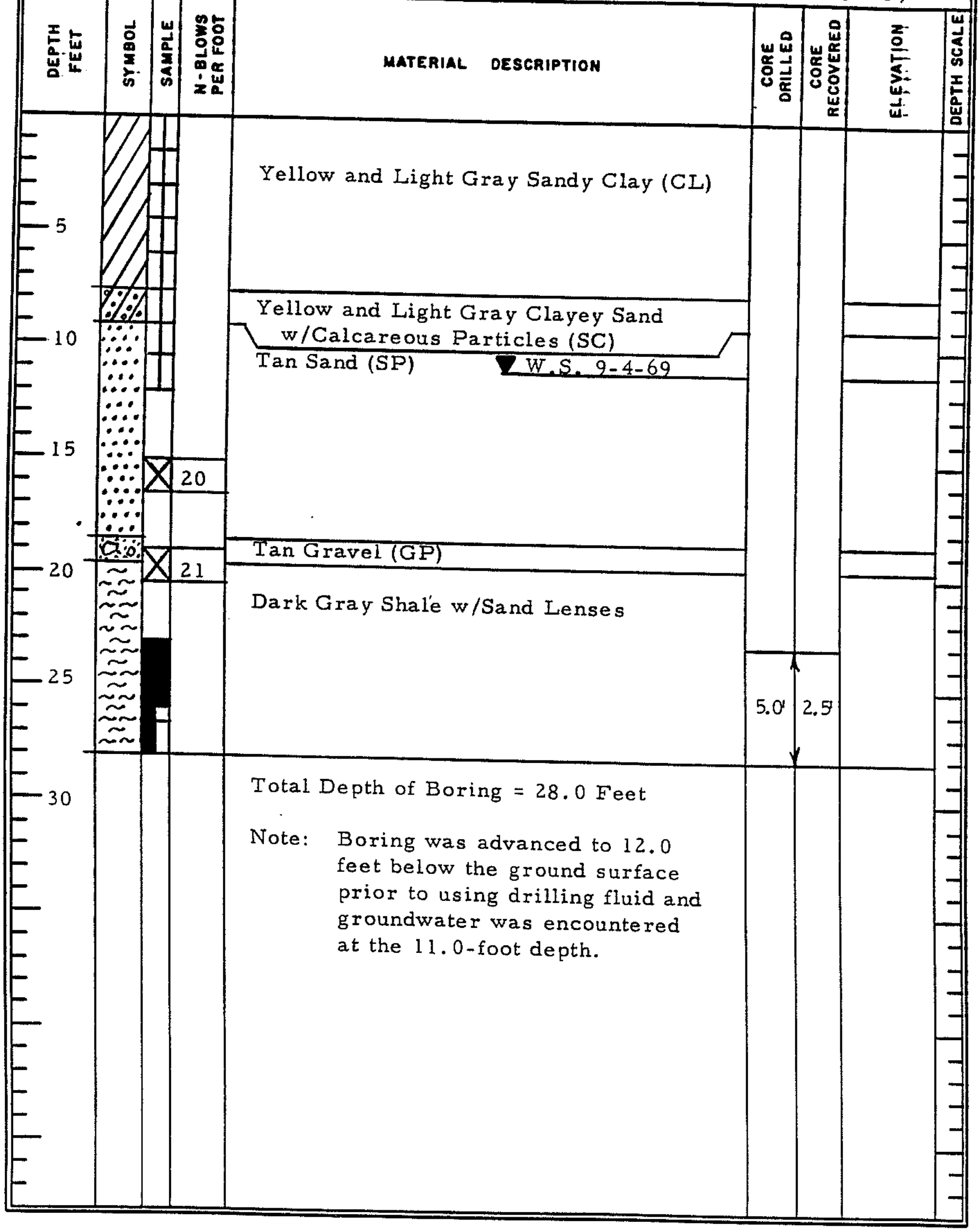
DATE: September 8, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 13
LOCATION: 560 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Gray Clay w/Sand Lenses (CH)				
5	▨			Dark Gray Clay w/Lignite Particles (CH)				
10	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
15				Total Depth of Boring = 10.5 Feet Note: Boring was advanced to 10.5 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE
(CULVERT)

DATE: September 4, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 14
LOCATION: 568 + 39



Yellow and Light Gray Sandy Clay (CL)

Yellow and Light Gray Clayey Sand w/Calcareous Particles (SC)

Tan Sand (SP) ▼ W.S. 9-4-69

Tan Gravel (GP)

Dark Gray Shale w/Sand Lenses

Total Depth of Boring = 28.0 Feet

Note: Boring was advanced to 12.0 feet below the ground surface prior to using drilling fluid and groundwater was encountered at the 11.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 9, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 15
LOCATION: 570 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5				Dark Gray Clay (CH)				
10				Yellow and Light Gray Clay w/ Calcareous and Lignite Particles and Sand Lenses (CH)				
				Tan Clayey Sand (SC)				
		☒	21	Tan Sand (SP)				
15				Total Depth of Boring = 13.5 Feet				

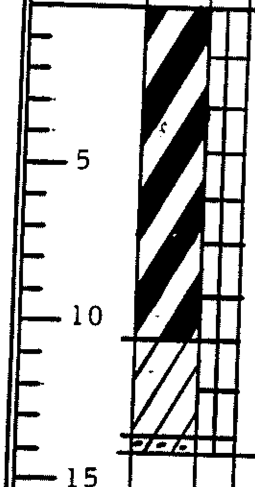
Note: Boring was advanced to 13.5 feet below the ground surface without using drilling fluid and groundwater was not detected above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 9, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 17
LOCATION: 590 + 00



DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5 10				Brown Clay (CH)				
				Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL) ▼ W.S. 9-9-69				
15				Yellow and Light Gray Clayey Sand (SC)				

Total Depth of Boring = 14.0 Feet

Note: Boring was advanced to 14.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 13.5-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

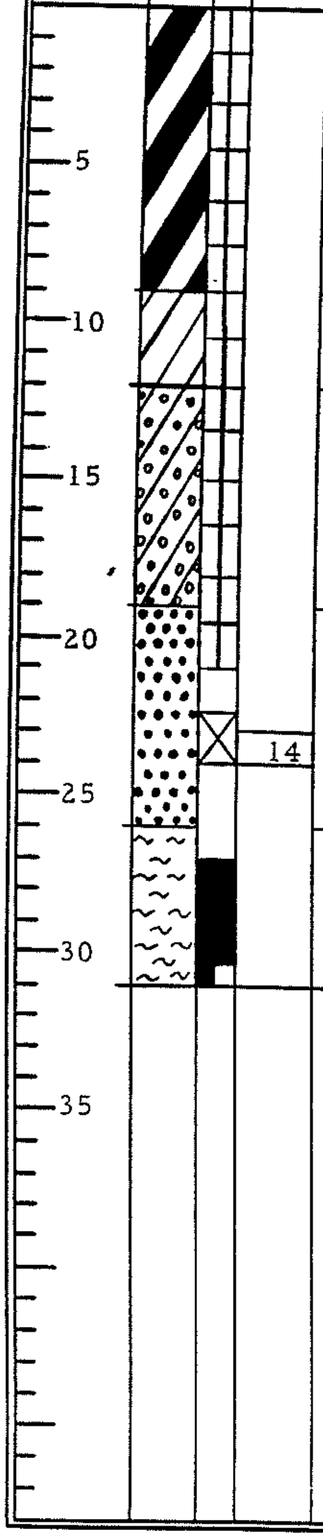
LOG OF BORING
FOR
ELLIS FARM LEVEE
(PUMP STATION)

DATE: September 9, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 18

LOCATION: 596+00



MATERIAL DESCRIPTION	N-BLOWS PER FOOT	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
Brown Clay (CH)					
Yellow and Light Gray Sandy Clay with Calcareous and Lignite Particles (CL)					
Yellow and Light Gray Clayey Sand (SC) ▼ W.S. 9-9-69					
Tan Sand (SP)	14				
Dark Gray Shale with Sand Lenses		4.0'	3.0'		

Total Depth of Boring = 31.0 Feet

Note: Boring was advanced to 21.0 feet below the ground surface prior to using drilling fluid and groundwater was encountered at the 19.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 12, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 19

LOCATION: 610 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Gray Clay w/Yellow Streaks (CH)				
	▨			Yellow and Light Gray Sandy Clay w/Lignite Particles (CL)				
10	▨			Yellow and Light Gray Clayey Sand w/Lignite Particles (SC)				

Total Depth of Boring = 12.0 Feet

Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 9, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 20
LOCATION: 620 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5 10	▨			Brown Clay (CH)				
15				Total Depth of Boring = 13.0 Feet Note: Boring was advanced to 13.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 9, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 21

LOCATION: 632 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5 10	▨			Brown Clay (CH)				
15				Total Depth of Boring = 13.0 Feet Note: Boring was advanced to 13.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 9, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 22
LOCATION: 640 + 00

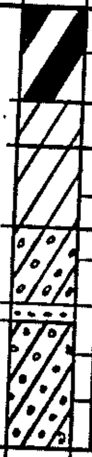
DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
5				Brown Clay (CH)				
10				Yellow and Light Gray Sandy Clay w/ Calcareous and Lignite Particles (CL)				
				Yellow and Light Gray Clayey Sand (SC)				
15				Total Depth of Boring = 13.5 Feet				

Note: Boring was advanced to 13.5 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 9, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 23
LOCATION: 650 + 00



DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
5				Gray Sandy Clay w/Yellow Streaks and Calcareous and Lignite Particles (CL)				
				Yellow and Light Gray Sandy Clay w/ Calcareous and Lignite Particles (CL)				
10				Yellow and Light Gray Clayey Sand (SC)				
				Tan Sand (SP)				
15				Yellow and Light Gray Clayey Sand w/Sand Layers (SC)				

Total Depth of Boring = 14.0 Feet

Note: Boring was advanced to 14.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE
(CULVERT)

DATE: September 9, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 24

LOCATION: 655 + 23.5

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE

-5 Dark Gray Clay (CH)

-10 Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)

▼ W.S. 9-9-69

-15 Yellow and Light Gray Clayey Sand (SC)

-20

Total Depth of Boring = 16.5 Feet

Note: Boring was advanced to 16.5 feet below the ground surface without using drilling fluid and groundwater was encountered at the 14.0-foot depth.

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 25

LOCATION: 660 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay w/Yellow Streaks (CH)				
5	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
10	▨			Yellow and Light Gray Clayey Sand w/Sand Layers (SC)				
15				Total Depth of Boring = 12.0 Feet				

Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 26
LOCATION: 670 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
5				Red and Gray Sandy Clay (CL)				
				Tan Clayey Sand (SC)				
10		☒	14	Tan Sand (SP)				
15								

Total Depth of Boring = 10.5 Feet

Note: Boring was advanced to 10.5 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 27
LOCATION: 680 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5				Dark Gray Clay (CH)				
				Yellow and Light Gray Sandy Clay w/Lignite Particles (CL)				
10				Tan Sand (SP) ▼ W.S. 9-10-69				
		☒	23					
15								

Total Depth of Boring = 13.5 Feet

Note: Boring was advanced to 13.5 feet below the ground surface without using drilling fluid and groundwater was encountered at the 11.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 28
LOCATION: 690 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay w/Yellow Streaks (CH)				
5	▨			Yellow and Light Gray Clay w/Lignite Particles (CH)				
10	▨			Yellow and Light Gray Clayey Sand (SC) ▼ W.S. 9-10-69				
15				Total Depth of Boring = 14.0 Feet				

Note: Boring was advanced to 14.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 12.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 29
LOCATION: 700 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay w/Yellow Streaks (CH)				
	▧			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
10	⁘			Yellow and Light Gray Clayey Sand (SC)				
	⁚			Tan Sand (SP)				
15				Total Depth of Boring = 13.5 Feet				

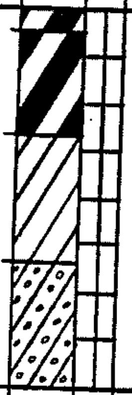
Note: Boring was advanced to 13.5 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 30
LOCATION: 710 + 00



DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
				Brown and Gray Clay (CH)				
5				Yellow and Light Gray Sandy Clay w/ Calcareous and Lignite Particles (CL)				
10				Yellow and Light Gray Clayey Sand w/ Lignite Particles (SC)				
15				Total Depth of Boring = 12.0 Feet				

Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 10, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 31

LOCATION: 720 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
10	▨			Yellow and Light Gray Clay w/ Calcareous and Lignite Particles (CH) — Sand Lenses at 12.0 - 12.5				
15				Yellow and Light Gray Sandy Clay (CL)				

Total Depth of Boring = 13.0 Feet

Note: Boring was advanced to 13.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 32
LOCATION: 730 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5				Gray Clay w/Yellow Streaks (CH)				
				Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
10				Yellow and Light Gray Clay w/Calcareous and Lignite Particles and Sand Lenses (CH)				
15				Total Depth of Boring = 12.0 Feet Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

LOG OF BORING
FOR
ELLIS FARM LEVEE
(CULVERT)

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 33
LOCATION: 739 + 57

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
10	▨			Yellow and Light Gray Clay w/Calcareous and Lignite Particles (CH)				
15				Total Depth of Boring = 12.0 Feet				

Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 34
LOCATION: 750 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Brown Clay w/Calcareous Particles (CH)				
10	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
15				Total Depth of Boring = 12.0 Feet Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 35
LOCATION: 760 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Brown Clay w/Lignite Particles (CH)				
10	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
15				Total Depth of Boring = 10.0 Feet				

Note: Boring was advanced to 10.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 36

LOCATION: 770 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
10	▨			Brown Clay w/Calcareous and Lignite Particles (CH)				
15				Total Depth of Boring = 11.0 Feet Note: Boring was advanced to 11.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 37
LOCATION: 780 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Brown Clay w/Calcareous and Lignite Particles (CH)				
10	▨			Yellow & Light Gray Clayey Sand (SC)				
15				Total Depth of Boring = 11.0 Feet				

Note: Boring was advanced to 11.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 38
LOCATION: 790 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
	▨			Brown Clay w/Calcareous and Lignite Particles (CH)				
10	▨			Yellow and Light Gray Clay w/ Calcareous and Lignite Particles (CH)				
15				Total Depth of Boring = 12.0 Feet Note: Boring was advanced to 12.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 10, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 39

LOCATION: 800 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Brown Clay w/Calcareous and Lignite Particles (CH)				
	▨			Yellow and Light Gray Clay w/ Calcareous and Lignite Particles (CH)				
10	▨			Yellow and Light Gray Sandy Clay w/ Caliche (CL)				
15				Total Depth of Boring = 13.0 Feet Note: Boring was advanced to 13.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 40
LOCATION: 810 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
5				Gray Clay (CH)				
10				Yellow and Light Gray Clay w/ Calcareous Particles (CH)				
15				Total Depth of Boring = 13.0 Feet				

Note: Boring was advanced to 13.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 41

LOCATION: 820 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
5				Brown Clay w/Calcareous and Lignite Particles (CH)				
				Yellow and Light Gray Sandy Clay w/Caliche and Lignite Particles (CL)				
10				Yellow and Light Gray Clayey Sand (SC)				
				Tan Sand (SP)				
15				Total Depth of Boring = 13.0 Feet				

Note: Boring was advanced to 13.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 42

LOCATION: 830 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
	▨			Yellow and Light Gray Clay w/ Calcareous and Lignite Particles (CH)				
10	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
15				Total Depth of Boring = 11.0 Feet Note: Boring was advanced to 11.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 43
LOCATION: 840 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Gray Clay w/Yellow Streaks and Lignite Particles (CH)				
10	▨			Yellow and Light Gray Clay w/Calcareous and Lignite Particles (CH)				
	▨			Yellow and Light Gray Sandy Clay (CL)				

Total Depth of Boring = 11.0 Feet

Note: Boring was advanced to 11.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 44
LOCATION: 850 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5				Dark Gray Clay (CH)				
				Gray Clay w/Yellow Streaks, Calcareous and Lignite Particles (CH)				
10				Yellow and Light Gray Clay w/Yellow (CH) Streaks, Calcareous & Lignite Particles				
				Yellow and Light Gray Sandy Clay w/ Calcareous and Lignite Particles (CL)				

Total Depth of Boring = 13.0 Feet

Note: Boring was advanced to 13.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 11, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 45

LOCATION: 860 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5				Gray Sandy Clay w/Yellow Streaks and Lignite Particles (CL) ▼ W.S. 9-11-69				
				Light Tan Sand (SP)				
10				Gray Clayey Sand w/Red Streaks (SC)				

Total Depth of Boring = 10.0 Feet

Note: Boring was advanced to 10.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 6.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 47
LOCATION: 880 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	⁘			Tan Silty Sand (SM)				
5	▨			Red and Light Gray Sandy Clay (CL)				
				Total Depth of Boring = 5.0 Feet Note: Boring was advanced to 5.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 48
LOCATION: 890 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Gray Clay w/Yellow Streaks and Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 7.0 Feet Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 11, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 49

LOCATION: 900 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Dark Gray Clay w/Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 6.0 Feet				

Note: Boring was advanced to 6.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 50
LOCATION: 910 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
5								
				Yellow and Light Gray Clay w/ Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 7.0 Feet				
				Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 51
LOCATION: 920 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Dark Gray Clay (CH)				
5				Gray Sandy Clay (CL) ▼ W.S. 9-11-69				
				Yellow and Light Gray Clayey Sand (SC)				
10				Tan Sand (SP)				

Total Depth of Boring = 9.0 Feet

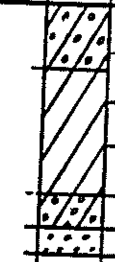
Note: Boring was advanced to 9.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 7.0-foot depth.

SOILS AND FOUNDATIONS DIVISION

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 52
LOCATION: 930 + 00



DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Gray Clayey Sand (SC)				
5				Yellow and Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
				Yellow and Light Gray Clayey Sand (SC)				
10				Tan Sand (SP)				

Total Depth of Boring = 8.0 Feet

Note: Boring was advanced to 8.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 53

LOCATION: 940 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Gray Clay w/Yellow Streaks, Calcareous and Lignite Particles (CH)				
	▨			Yellow and Light Gray Sandy Clay w/Lignite Particles (CL)				
10				Total Depth of Boring = 7.0 Feet Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 54
LOCATION: 950 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Sandy Clay (CL)				
5	▨			Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)				
10				Total Depth of Boring = 7.0 Feet Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 55

LOCATION: 960 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
	▨			Gray Clay w/Yellow Streaks and Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 7.0 Feet				
				Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR

ELLIS FARM LEVEE

DATE: September 11, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 56

LOCATION: 970 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
10				Total Depth of Boring = 7.0 Feet Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 11, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 57
LOCATION: 980 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Gray Clay (CH)				
10				Total Depth of Boring = 7.0 Feet Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 58
LOCATION: 990 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
	▨			Light Gray Clay w/Yellow Streaks, Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 8.0 Feet Note: Boring was advanced to 8.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 59
LOCATION: 1000 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
10				Total Depth of Boring = 7.0 Feet Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 60
LOCATION: 1010 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Dark Gray Clay (CH)				
	▨			Gray Clay w/Yellow Streaks, Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 8.0 Feet Note: Boring was advanced to 8.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE
(CULVERT)

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 61
LOCATION: 1024 + 56

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Brown Silty Sand (SM)				
				Yellow and Light Gray Sandy Clay w/ Calcareous and Lignite Particles(CL)				
5				Yellow and Light Gray Clayey Sand (SC) ▼ W.S. 9-12-69				
		☒	20	Tan Sand (SP)				
10								
		☒	17					
15								
		☒	8					
20				Total Depth of Boring = 17.5 Feet				

Note: Boring was advanced to 7.0 feet below the ground surface prior to using drilling fluid and groundwater was encountered at the 5.7-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 62
LOCATION: 1031 + 85

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
				Gray Sandy Clay w/Sand Lenses (CL)				
5				Gray Sandy Clay w/Yellow Streaks and Lignite Particles (CL)				
				Yellow and Light Gray Sandy Clay w/Lignite Particles (CL)				
10				Tan Clayey Sand (SC)				

Total Depth of Boring = 7.0 Feet

Note: Boring was advanced to 7.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 63
LOCATION: 1040 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Gray Clay w/Yellow Streaks (CH)				
10	▨			Yellow and Light Gray Clay (CH) w/Calcareous and Lignite Particles				

Total Depth of Boring = 8.0 Feet

Note: Boring was advanced to 8.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 64
LOCATION: 1050 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Dark Gray Clay (CH)				
5	▨			Gray Clay w/Yellow Streaks (CH)				
	▨			Yellow and Light Gray Clay w/ Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 8.5 Feet				

Note: Boring was advanced to 8.5 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 65
LOCATION: 1060 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Gray Clay w/Yellow Streaks (CH)				
	▨			Yellow and Light Gray Clay w/Calcareous and Lignite Particles (CH)				
10				Total Depth of Boring = 9.0 Feet				

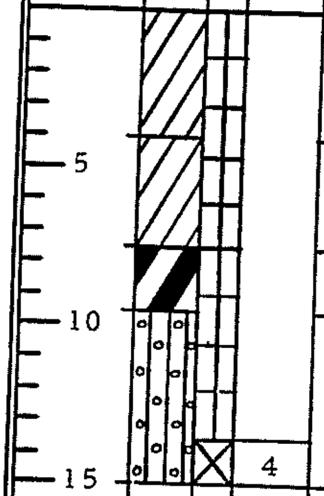
Note: Boring was advanced to 9.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR ELLIS FARM LEVEE (CULVERT)

DATE: September 3, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 66
LOCATION: 1066 + 40

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE



Dark Gray Sandy Clay w/Yellow Streaks and Calcareous Particles (CL)

Yellow and Light Gray Sandy Clay w/Calcareous and Lignite Particles (CL)

▼ W.S. 9-3-69

Yellow and Light Gray Clay w/ Sand Lenses (CH)

Light Gray Silty Sand (SM)

Total Depth of Boring = 15.0 Feet

Note: Boring was advanced to 15.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 9.0-foot depth.

TRINITY ENGINEERING TESTING CORPORATION

LOG OF BORING FOR

ELLIS FARM LEVEE

DATE: September 12, 1969

PROJECT LOCATION: Huntsville, Texas **TYPE:** Core

BORING NO. 67

LOCATION: 1070 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
5	▨			Gray Sandy Clay (CL)				
	▨			Yellow and Light Gray Sandy Clay w/Lignite Particles (CL)				
10				Total Depth of Boring = 9.0 Feet Note: Boring was advanced to 9.0 feet below the ground surface without using drilling fluid and groundwater was not encountered above that depth.				

TRINITY ENGINEERING TESTING CORPORATION

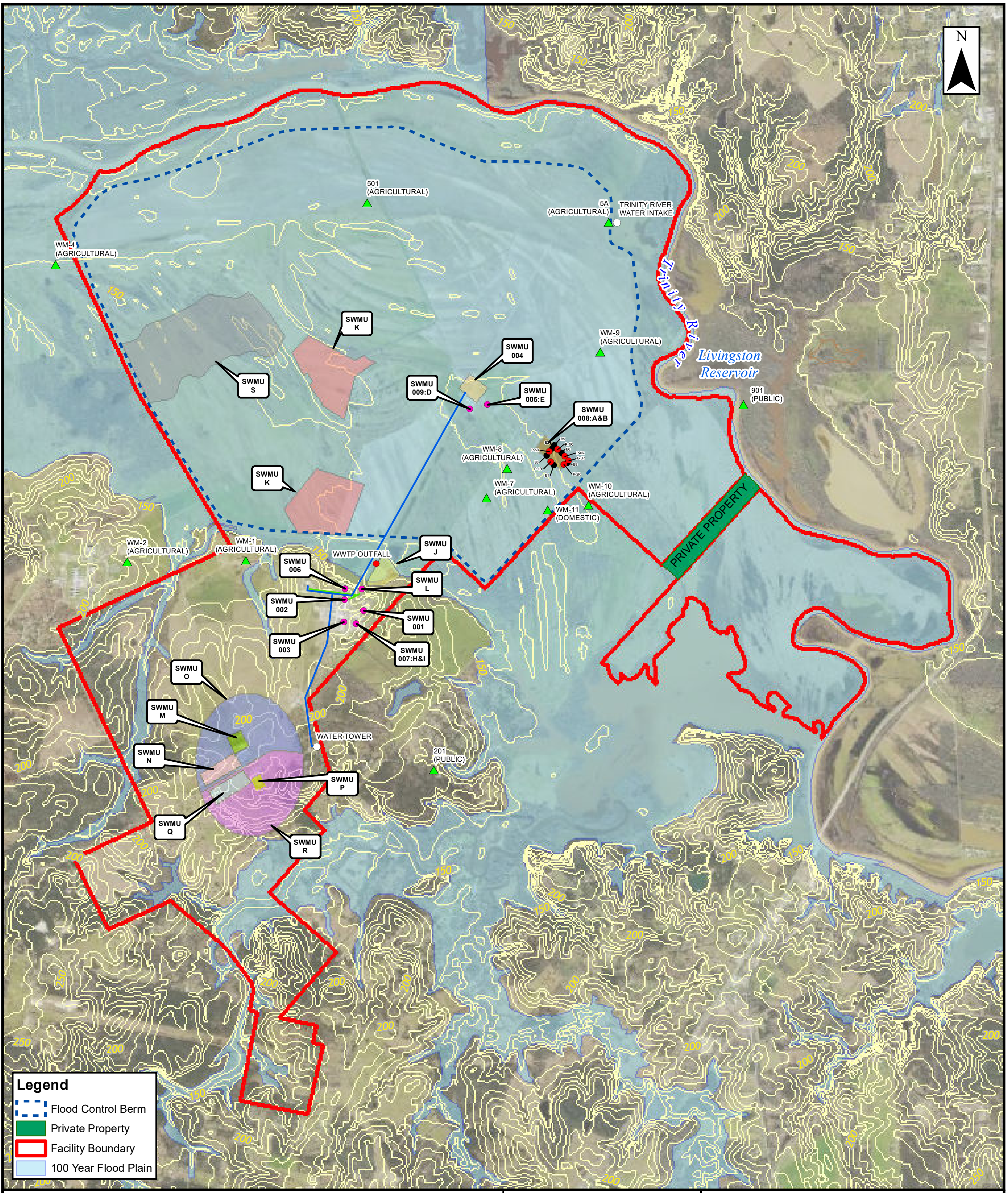
LOG OF BORING
FOR
ELLIS FARM LEVEE

DATE: September 12, 1969
PROJECT LOCATION: Huntsville, Texas **TYPE:** Core
BORING NO. 68
LOCATION: 1080 + 00

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEVATION	DEPTH SCALE
	▨			Gray Sandy Clay (CL)				
5	▨			Yellow and Light Gray Sandy Clay w/Lignite Particles (CL)				
10				Total Depth of Boring = 9.0 Feet Note: Boring was advanced to 9.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.				

FIGURE II.F

FLOOD PLAIN MAP



0 0.25 0.5 1 1.5
Miles

0 2,500 5,000 10,000
Feet

Path: \\na.aecomnet.com\lfs\AMER\Austin-USAUS2\DCS\Projects\ENV\TDCJ\TDCJ Ellis\HW Permit Renewal\2024 Renewal\09_GIS\MXD\B.11.F.1 - Flood Plain Map.mxd

AECOM

13460 Briarwick Drive, Suite 200
Austin, TX 78729
Phone: (512) 454-4797
Fax: (512) 419-5474

Scale:	Drawn by:	Date:
As Shown	KPL	6/10/2024
	Chk'd by:	Date:
	JST	6/10/2024

Title:

Flood Plain Map

Project:

TDCJ Ellis Unit, RCRA Renewal
HW-50361

Client:
Texas Department of Criminal Justice

Project No.:	File Name:	Figure:
60726186	B.11.F.1 - Flood Plain Map.mxd	II.F

APPENDIX II.G.6.

DEED RECORDATION

04567

AFFIDAVIT TO THE PUBLIC

INDUSTRIAL SOLID WASTE
DISPOSAL SITE DEED RECORDATION

STATE OF TEXAS

COUNTY OF WALKER

Before me, the undersigned authority, on this day personally appeared James A. Lynaugh, who, after being by me duly sworn, upon oath states that he is the owner of record of that certain tract or parcel of land lying and being situated in Walker County, Texas, and being more particularly described as follows:

See Exhibit "A" (Attached)

I.

The undersigned further states that from the year 1964 to the year 1988 there was operated on the aforesaid tract of land a Solid Waste Disposal Site.

Pursuant to the Rules of the Texas Water Commission pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Walker County, Texas in compliance with the recordation requirements of said rules. Specifically, such operation was conducted on that portion of the aforesaid tract described as follows:

See Exhibit "B" (Attached)

II.

Wastes deposited hereon have been classified by the Texas Water Commission as Class I. Class I waste is defined as "Any industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat, or other means, and may pose a substantial present or potential danger to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise managed, including hazardous industrial waste."

III.

Further, the undersigned, Robert E. Petty, IV was the operator of such Solid Waste Disposal Site.

Notice is hereby provided to any future owner or user of the site to consult with the Texas Water Commission prior to planning or initiating any activity involving the disturbance of the landfill cover or monitoring system.

WITNESS MY/OUR HAND(S) on this the 14 day of September, 1989.

James A. Lynaugh, Director
Owner: Institutional Division,
Texas Department of
Criminal Justice

Robert E. Petty, IV Asst. Director
Operator: Facilities Division,
Institutional Division,
Texas Department of
Criminal Justice

SWORN TO AND SUBSCRIBED before me on this the 14 day of September, 1989.

Notary Public in and for
Walker County, Texas

A TRUE COPY
I HEREBY CERTIFY, JAMES D. PATTON
COUNTY CLERK WALKER COUNTY
BY ______ DEPUTY

EXHIBIT A

The following notes describe that certain tract of land located in Walker County, Texas and described therein the Deed Record Books, being owned by the State of Texas,and under the control of the Texas Department of Corrections,and being a parcel of larger tracts, known as the Ellis I prison unit. In conveyance deed from Albert E. Cunningham et ux to the State of Texas dated November 10, 1959, recorded in Volume 165 pages 138,139,140 of Walker County Deed Records, conveying 2510.45 acres, more or less, in Three(3) tracts of land. The second tract, being the subject tract, containing 811.00 acres, more or less, out of and part of the I.G. Webb Survey Abstract No. 572, in Two(2) tracts of 545.00 and 266.00 acres, more or less. Said 266.00 acre tract being the tract that contains subject landfill, described as follows:

<u>Tract No.2</u> Beginning at the North corner of Lot No.4 in a subdivision of the said Webb Survey, a stake on S.W. bank of the Trinity River from which a Pin Oak, 6 inches bears south 73 varas.

<u>Thence</u> S45 W with line of lot No.4 for 1987 varas to West corner of said lot. A stake from which a Post Oak, 10 inches, bears S42 W, 8 varas, and a Gum Elastic, 8 inches, bears N5 E 28 varas.

<u>Thence</u> N45 W 1117 varas to North corner of the E. Allen League. A stake from which a Pin Oak, 12 inches, bears S23 W 27 varas.

<u>Thence</u> N63 30'E 1900 varas to stake on Southwest bank of Trinity River, from which a Post Oak, 18 inches, bears S35 E 7 varas. And a Hackberry, 8 inches, bears S88 E 11 varas.

<u>Thence</u> down the Trinity River with meanderings thereof to the place of beginning, containing 266 acres of land, more or less.

A TRUE COPY
I HEREBY CERTIFY, JAMES D. PATTON
COUNTY CLERK WALKER COUNTY
BY__________________DEPUTY

EXHIBIT B

Starting at the most Northerly corner of the Thomason tract, being a portion of that certain tract of land described in a Deed of Trust from Marguerite E. Thomason and husband J.H. Thomason to A.C. Williams dated September 2, 1937 as recorded in Volume W Page 251, of the Deed of Trust records of Walker County, Texas. Said corner being S45 50'E 795.00' from the West corner of Lot No.4 described in in EXHIBIT A. From said Northerly corner go S45 W, 35.00' to centerline of dirt road.

Thence N45 52'21"W, 991.14' to point in centerline of dirt road.

Thence S45 29'11"W, 34.15' to fence corner of that certain tract of land out of a called 266 acre tract out of the I.G. Webb Survey, Abstract No.572 recorded in Volume 165 Pages 138,139,140, of the Deed Records of Walker County, Texas, and point of beginning.

Thence S45 43'46"W, 463.69' to fence corner.

Thence N40 31'12"W, 711.50' to point in fenceline.

Thence N44 07'39"E 530.02' to point in fenceline for corner.

Thence S45 53'03"E 695.43' to fence corner and point of beginning, containing 9.07 acres more or less and is site of subject landfill.

FILED FOR RECORD
JAMES D. PATTON
COUNTY CLERK

'89 SEP 15 10 03

THE STATE OF TEXAS
COUNTY OF WALKER
I, James D. Patton, County Clerk in and for Walker County, Texas do hereby certify that this instrument was filed for record in the volume and page of the named record and at the time and date as stamped hereon by me.

JAMES D. PATTON, CLERK
WALKER COUNTY, TEXAS

STATE OF TEXAS
COUNTY OF WALKER
I, James D. Patton, [illegible] Walker County, Texas, do hereby certify [illegible] true and correct copy of the original [illegible]
file # 04567 Official Public
[illegible] 15
September 1989

OFFICIAL PUBLIC RECORDS

APPENDIX II.G.7.

EXPOSURE ASSESSMENT

Attachment B.II.G.7
Exposure Assessment

This Exposure Assessment for the Texas Department of Criminal Justice (TDCJ), Ellis Unit, has been prepared to provide information on the potential for public exposure to hazardous waste or hazardous constituents, as required by 30 TAC 305.50(a)(8) and 40 CFR 270.10(j) for land-based units. This report presents the foreseeable potential releases, potential pathways of human exposure due to releases, and the potential magnitude and nature of the human exposure resulting from a release from the hazardous waste landfill.

The Ellis landfill is located on prison property. The Former Landfill (FLF) is a closed unit; therefore, the potential for releases from this unit is minimal. The unit is capped with a compacted clay cover to minimize infiltration of rainwater and are maintained as required in the Post-Closure Care Plan to minimize erosion; therefore, exposure to air, soil, and groundwater are minimized. Groundwater impacts from the FLF are managed through the Groundwater Detection Monitoring Program described in Section VI; it should be noted impacts have not been identified. The FLF is located several thousand feet from the nearest property line. Thus, in the event that a release occurs, the groundwater monitoring system will detect the release before the contaminants of concern reach the property line. In the event of a release, exposure to hazardous waste constituents could include constituents of wastes which have been disposed of in the FLF. These constituents include volatile organics and metals.

SECTION III FACILITY MANAGEMENT

III. Facility Management

Provide all Part B responsive information in Appendix III. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

A. Compliance History and Applicant Experience

1. Provide listings of all solid waste management sites in Texas owned or controlled by the applicant as required by 30 TAC 305.50(a)(2).

2. For a new commercial hazardous waste management facility, provide a summary of the applicant's experience in hazardous waste management as

RESERVED

B. Personnel Training Plan - RESERVED

C. Security

Describe how the facility complies with the security requirements of 40 CFR 264.14 or submit a justification demonstrating the reasons for requesting a waiver of these requirements.

D. Inspection Schedule

Describe summary of inspection schedule and Table III.D in Appendix III.D in accordance with instructions below.

Provide an inspection schedule summary for the facility which reflects the requirements of 40 CFR 264.15(b), 264.33 and, where applicable, the specific requirements in 40 CFR 264.174, 264.193(i), 264.195, 264.226, 264.254, 264.273, 264.303, 264.347, 264.552, 264.574, 264.602, 264.1033(f), 264.1034, 264.1052, 264.1053(e), 264.1057, 264.1058, 264.1063, 264.1084, 264.1085, 264.1086, 264.1088, 264.1101(c)(4) and 270.14(b)(5). The inspection schedule should reflect the requirements described below. The schedule should encompass each type of hazardous waste management (HWM) unit (i.e., facility component) and its inspection requirements. For incorporation into a permit, complete Table III.D. - Inspection Schedule for all units to be permitted.

The owner or operator must inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to the release of hazardous waste constituents to the environment or which may pose a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

The owner or operator must develop and follow a written schedule for inspecting other basic elements such as monitoring equipment, safety and emergency equipment, security devices, the presence of liquids in leak detection systems, where installed, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

If the owner or operator of a facility which contains a waste pile wishes to pursue an exemption from the groundwater monitoring requirements for that waste management unit, the inspection schedule must include examination of the base for cracking, deterioration, or other conditions that may result in leaks. The frequency of inspection must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates, and subsurface stability).

E. Contingency Plan - RESERVED

F. Emergency Response Plan - RESERVED

TABLE III.D

INSPECTION SCHEDULE

Table III.D- Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Hazardous Waste Landfill and Former Penta Tank Area	Cap and Cover for Erosion Damage, Rills	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Cap Damage Due to Burrowing or Grazing Animals	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Cap and Cover for Subsidence	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Access Road Inaccessibility	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Cap and Cover for Lack of Vegetation/ Stressed Vegetation	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Mowing and Other Necessary Maintenance	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Damaged or Obstructed Surface Drainage Routes	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Construction Activities	Quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Benchmarks - Presence	Every five years
Hazardous Waste Landfill and Former Penta Tank Area	Flood Damage or Standing Water	After heavy rains or quarterly
Hazardous Waste Landfill and Former Penta Tank Area	Monitor Wells for Clogged Well Screen, or Locking Device Missing	During groundwater monitoring events
Security Features	Damage/Holes in Fences and Gates	Quarterly
Security Features	Signs Missing/Damaged	Quarterly
Emergency Equipment	Extinguishers	Annually

Permit No. 50361

Permittee: TDCJ Ellis Unit

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Emergency Equipment	Fire Hydrant Flow	Annually
Emergency Equipment	Telephone - Able to reach an Outside Line	Daily Use

APPENDIX III.A

COMPLIANCE HISTORY AND APPLICANT EXPERIENCE

TCEQ Compliance History Search

Compliance History - RN102315199

Regulated Entity Information

RN: RN102315199

Name: TDCJ ELLIS UNIT

Location: 1697 FM 980 RD
HUNTSVILLE, TX 77320-3314

County: WALKER

Region: REGION 12 - HOUSTON

Compliance History by Customer

There is 1 customer associated to this site. The Customer's compliance history for the site is displayed below.

1-1 of 1 Records

CN ▲	Customer Name	Related Program IDs	Rating	Classification	Date Rated
CN601550650	TEXAS DEPARTMENT OF CRIMINAL JUSTICE	AIRNSR 168934 AIRNSR 168935 AIRNSR 44379 AIRNSR 50879 AIRNSR 56090 AIRNSR 81118 IHW 50361 IHW TXD980747893 IHWCA 71331 PSTREG 56148 WWAG TXG920525 WWPERMIT WQ0011180001	0.67	SATISFACTORY	09/01/2023

1-1 of 1 Records

▲ Back to top

Attachment III.A
Compliance History

RN Number	Regulated Entity Name	County	Location
RN100652486	TDCJ HOSPITAL MARLIN	FALLS	1016 WARD ST MARLIN TX 76661 2175
RN100829597	TDCJ LUTHER UNIT	GRIMES	1800 LUTHER DR NAVASOTA TX 77868 4714
RN100912534	TDCJ TERRELL UNIT	BRAZORIA	1300 FM 655 RD ROSHARON TX 77583 8604
RN101044006	TDCJ HOUSTON VI DPO	HARRIS	10110 NORTHWEST FWY HOUSTON TX 77092 8603
RN101058808	SAN ANGELO ELECTRIC SERVICES COMPANY - SESCO	TOM GREEN	926 PULLIAM ST SAN ANGELO TX 76903 4955
RN101290989	TDCJ WALLACE UNIT	MITCHELL	1675 FM 3525 COLORADO CITY TX 79512 2858
RN101475648	ADJ 4240	KARNES	NO LOCATION ON FILE
RN101558203	TDCJ BRIDGEPORT PP	WISE	4000 N 10TH ST BRIDGEPORT TX 76426 6140
RN101567592	TDCJ ESTES UNIT	JOHNSON	1100 HIGHWAY 1807 VENUS TX 76084 3966
RN101649556	SPECTOR SALVAGE YARD	ORANGE	S 10TH ST AT POLK ORANGE TX 77630
RN101658086	TDCJ CHASE FIELD	BEE	111 BYRD ST BEEVILLE TX 78102 8988
RN101665495	TDCJ BUFFALO RANCH	BURLESON	14391 PRIVATE RD SOMERVILLE TX 77879
RN102195245	TDCJ HOBBY UNIT	FALLS	742 FM 712 MARLIN TX 76661 4685
RN102205218	TDCJ WOODMAN SJ	CORYELL	1210 CORYELL CITY RD GATESVILLE TX 76528 2913
RN102314069	TDCJ CLEMENS 2 UNIT	BRAZORIA	6999 RETRIEVE RD ANGLETON TX 77515 6618
RN102314150	TDCJ JESTER 1 UNIT	FORT BEND	1 JESTER RD RICHMOND TX 77406 7922
RN102314283	TDCJ PACK UNIT	GRIMES	2400 WALLACE PACK RD NAVASOTA TX 77868 4567
RN102314341	TDCJ CLEMENS UNIT	BRAZORIA	11034 S HIGHWAY 36 BRAZORIA TX 77422 8375
RN102314341	TDCJ CLEMENS UNIT	BRAZORIA	11034 S HIGHWAY 36 BRAZORIA TX 77422 8375
RN102314374	TDCJ TERRELL UNIT	BRAZORIA	1300 FM 655 ROSHARON TX 77583 8604
RN102314432	TDCJ ESTELLE UNIT	WALKER	264 FM 3478 RD HUNTSVILLE TX 77320 3322
RN102314465	TDCJ WAINWRIGHT UNIT	HOUSTON	2665 PRISON ROAD 1 LOVELADY TX 75851 5609
RN102314671	TDCJ JESTER 3 UNIT	FORT BEND	3 JESTER RD, RICHMOND TX 77406 8544
RN102314788	TDCJ ELLIS UNIT CAFO	WALKER	1697 FM 980 RD HUNTSVILLE TX 77320 3314
RN102315199	TDCJ ELLIS UNIT	WALKER	1697 FM 980 RD HUNTSVILLE TX 77320 3314
RN102315363	TDCJ HUGHES UNIT	CORYELL	3201 FM 929 GATESVILLE TX 76597 1010
RN102315553	TDCJ BETO UNIT	ANDERSON	1391 FM 3328, TENNESSEE COLONY TX 75880 5000
RN102316924	TDCJ JESTER UNIT	FORT BEND	1 JESTER RD RICHMOND TX 77406 7922
RN102317047	TDCJ POWLEDGE UNIT	ANDERSON	1400 FM 3452 PALESTINE TX 75803 2350
RN102317070	TDCJ COFFIELD UNIT	ANDERSON	2661 FM 2054 W TENNESSEE COLONY TX 75884 0001
RN102318193	TDCJ RAMSEY UNIT	BRAZORIA	1100 FM 655 RD ROSHARON TX 77583 7670
RN102318821	TDCJ CLEMENS UNIT IHW	BRAZORIA	11034 S HIGHWAY 36 BRAZORIA TX 77422 8375
RN102319126	TDCJ CENTRAL UNIT	FORT BEND	1 CIRCLE DR SUGAR LAND TX 77498 1417
RN102320199	TDCJ GOREE UNIT	WALKER	7504 STATE HIGHWAY 75 S HUNTSVILLE TX 77340 2484
RN102320322	TDCJ JESTER UNIT	FORT BEND	1 JESTER RD RICHMOND TX 77406 7922
RN102321239	TDCJ MOUNTAIN VIEW UNIT	CORYELL	2305 RANSOM RD GATESVILLE TX 76528 2962
RN102322096	TDCJ JORDAN UNIT	GRAY	1992 HELTON RD PAMPA TX 79065 9655
RN102322708	TDCJ LEWIS UNIT	TYLER	777 FM 3497 WOODVILLE TX 75990 9990
RN102325263	TDCJ VANCE UNIT	FORT BEND	2 JESTER RD RICHMOND TX 77406 7922
RN102329448	TDCJ STRINGFELLOW UNIT	BRAZORIA	1200 FM 655 RD ROSHARON TX 77583 8602
RN102341401	TDCJ RAMSEY UNIT	BRAZORIA	1100 FM 655 RD ROSHARON TX 77583 7670
RN102361383	TDCJ BRISCOE UNIT	FRIO	1459 W HIGHWAY 85 DILLEY TX 78017 4601
RN102412095	TDCJ BOYD UNIT	FREESTONE	FROM THE INTERSECTION OF HWY 84 AND SPUR 113, TURN LEFT ON SPUR 113 AND GO .8 MILES TO THE UNIT ENTRANCE
RN102412111	TDCJ HIGHTOWER UNIT	LIBERTY	902 FM 686 DAYTON TX 77535 2299
RN102412558	TDCJ MEMORIAL UNIT	BRAZORIA	59 DARRINGTON RD ROSHARON TX 77583 5057
RN102413077	TDCJ POLUNSKY UNIT	POLK	3872 FM 350 S LIVINGSTON TX 77351 8580
RN102413507	TDCJ ROBERTSON UNIT	JONES	12071 FM 3522 ABILENE TX 79601 8749
RN102414430	TDCJ BRAD LIVINGSTON ADMINISTRATIVE HQ	WALKER	861B INTERSTATE 45 N HUNTSVILLE TX 77320 1143
RN102415064	TDCJ HILLTOP UNIT	CORYELL	1500 STATE SCHOOL RD GATESVILLE TX 76598 0003
RN102417060	TDCJ WYNNE UNIT	WALKER	801 FM 2821 AND HIGHWAY 75 HUNTSVILLE TX
RN102418605	TDCJ HUNTSVILLE UNIT	WALKER	815 12TH ST HUNTSVILLE TX 77340 5200
RN102418688	TDCJ MICHAEL UNIT	ANDERSON	2664 FM 2054 TENNESSEE COLONY TX 75861 5000
RN102418878	TDCJ SMITH UNIT	DAWSON	1313 CR 19 LAMESA TX 79331 1817
RN102419181	TDCJ POWLEDGE UNIT	ANDERSON	1400 FM 3452 PALESTINE TX 75803 2350
RN102419553	TDCJ MCCONNELL UNIT	BEE	3001 EMILY DR BEEVILLE TX 78102 8696

Attachment III.A
Compliance History

RN Number	Regulated Entity Name	County	Location
RN102419892	TDCJ GARZA UNIT	BEE	4 MILES E OF THE INTERSECTION OF HWY 181S AND HWY 202 ON
RN102420643	TDCJ STRINGFELLOW UNIT	BRAZORIA	1200 FM 655 RD ROSHARON TX 77583 8602
RN102420882	TDCJ MONTFORD UNIT	LUBBOCK	8602 PEACH AVE LUBBOK TX 79404 7777
RN102421666	TDCJ WATER HAULER RV FACILITIES MAINTENANCE	CHILDRESS	15845 FM 164 CHILDRESS TX 79201 7919
RN102792868	TDCJ NEAL UNIT	POTTER	9055 SPUR 591 AMARILLO TX 79107 9696
RN102793064	TDCJ LYNAUGH UNIT	PECOS	1098 S HIGHWAY 2037 FORT STOCKTON TX 79735 9795
RN102794559	TDCJ CLEVELAND PP	LIBERTY	901 E 5TH ST CLEVELAND TX 77327 3416
RN102796323	TDCJ STILES UNIT	JEFFERSON	3060 FM 3514 BEAUMONT TX 77705 7635
RN102797065	TDCJ DANIEL UNIT	SCURRY	938 S FM 1673 SNYDER TX 79549 8812
RN102816873	TDCJ FERGUSON UNIT	MADISON	12120 SAVAGE DR MIDWAY TX 75852 3654
RN102907417	TDCJ GURNEY UNIT	ANDERSON	1385 FM 3328 PALESTINE TX 75803 5000
RN102910981	TDCJ WAYNE SCOTT UNIT	FORT BEND	4 JESTER RD RICHMOND TX 77406 8544
RN102953577	TDCJ DALHART UNIT	HARTLEY	11950 FM 998 DALHART TX 79022 7624
RN102953684	TDCJ DAWSON SJ	DALLAS	106 W COMMERCE ST DALLAS TX 75208 1913
RN102953973	TDCJ COTULLA UNIT	LA SALLE	610 FM 624 COTULLA TX 78014 5022
RN102954047	TDCJ COLE STATE JAIL	FANNIN	3801 SILO RD BONHAM TX 75418 5817
RN102954070	TDCJ CONNALLY UNIT	KARNES	899 FM 632 KENEDY TX 78119 4516
RN102954708	TDCJ FORT STOCKTON UNIT	PECOS	1500 IH 10 E FORT STOCKTON TX 79735 9651
RN102954716	TDCJ HALBERT UNIT	BURNET	800 ELLEN HALBERT DR BURNET TX 78611, LOCATED OFF HWY 281 S NEAR THE AIRPORT
RN102954724	TDCJ GLOSSBRENNER SAFPF	DUVAL	5100 S FM 1329 SAN DIEGO TX 78384 3907
RN102954757	TDCJ HUTCHINS STATE JAIL	DALLAS	1500 E LANGDON RD DALLAS TX 75241 7136
RN102954773	TDCJ HAVINS UNIT	BROWN	500 FM 45 E, BROWNWOOD TX 76801 6902
RN102954799	TDCJ HODGE UNIT	CHEROKEE	379 FM 2972 W RUSK TX 75785 3666
RN102954815	TDCJ FORMBY STATE JAIL	HALE	970 COUNTY ROAD AA PLAINVIEW TX 79072 9641
RN102954823	TDCJ DOMINGUEZ STATE JAIL	BEXAR	6535 CAGNON RD SAN ANTONIO TX 78252 2211
RN102954831	TDCJ BYRD UNIT	WALKER	21 FM 247 RD HUNTSVILLE TX 77320 8701
RN102954849	TDCJ JOHNSTON SAFPF	WOOD	703 AIRPORT RD WINNSBORO TX 75494 7002
RN102954856	TDCJ KEAGANS STATE JAIL	HARRIS	707 TOP ST HOUSTON TX 77002 1223
RN102954864	TDCJ KYLE PRIVATE PRISON	HAYS	23001 IH 35 KYLE TX 78640 5303
RN102954971	TDCJ MOORE C UNIT	FANNIN	1700 FM 87 BONHAM TX 75418 5818
RN102954989	TDCJ MOORE B PP	RUSK	8500 FM 3053 N OVERTON TX 75684 6008
RN102954997	TDCJ MIDDLETON UNIT	JONES	13055 FM 3522 ABILENE TX 79601 8759
RN102955002	TDCJ NEY UNIT	MEDINA	114 PRIVATE ROAD 4303 HONDO TX 78861 3812
RN102955598	TDCJ LINDSEY STATE JAIL	JACK	1137 OLD POST OAK RD JACKSBORO TX 76458 9420
RN102955648	TDCJ STEVENSON UNIT	DEWITT	1525 FM 766 CUERO TX 77954 6300
RN102955929	TDCJ ALLRED UNIT	WICHITA	2101 FM 369 N IOWA PARK TX 76367 6568
RN102956067	TDCJ SOUTH TEXAS ISF	HARRIS	1511 PRESTON ST HOUSTON TX 77002 2131
RN102956083	TDCJ BRADSHAW STATE JAIL	RUSK	3900 W LOOP 571 N 1 MILE N OF HENDERSON
RN102956091	TDCJ BATEN ISF	GRAY	1995 HELTON RD PAMPA TX 79065 9655
RN102958402	TDCJ HOLLIDAY UNIT	WALKER	295 INTERSTATE 45 N HUNTSVILLE TX 77320 4959
RN102958865	TDCJ DUNCAN UNIT	ANGELINA	1502 S 1ST ST DIBOLL TX 75941 9668
RN102959079	TDCJ DIBOLL PP	ANGELINA	1604 S 1ST ST DIBOLL TX 75941 9672
RN102959103	TDCJ LOPEZ STATE JAIL	HIDALGO	1203 E EL CIBOLO RD EDINBURG TX 78542 2200
RN102959129	TDCJ LYCHNER STATE JAIL	HARRIS	2350 ATASCOCITA RD HUMBLE TX 77396 3503
RN102959137	TDCJ GIST STATE JAIL	JEFFERSON	3295 FM 3514 BEAUMONT TX 77705 7655
RN102959145	TDCJ LEBLANC UNIT	JEFFERSON	3695 FM 3514 BEAUMONT TX 77705 7653
RN102959160	TDCJ SKYVIEW UNIT	CHEROKEE	LESS THAN 1 MILE W OF THE INTERSECTION OF HWY 69 ON FM 2972, 379 FM 2972 W RUSK 75785
RN102959178	TDCJ SEGOVIA UNIT	HIDALGO	1201 E EL CIBOLO RD EDINBURG TX 78542 9914
RN102959186	TDCJ WHEELER UNIT	HALE	986 COUNTY ROAD AA PLAINVIEW TX 79072 9641
RN102959194	TDCJ WARE UNIT	MITCHELL	1681 FM 3525 COLORADO CITY TX 79512 2858
RN102959202	TDCJ MECHLER UNIT	SWISHER	4000 HIGHWAY 86 TULIA TX 79088 3919
RN102959269	TDCJ YOUNG UNIT	GALVESTON	5509 ATTWATER AVE DICKINSON TX 77539 4157
RN102959277	TDCJ WILLACY COUNTY SJ	WILLACY	1695 BUFFALO DR RAYMONDVILLE TX 78580 4115

Attachment III.A
Compliance History

RN Number	Regulated Entity Name	County	Location
RN102959343	TDCJ COLEMAN UNIT	CALDWELL	1 MILE W OF HWY 183 ON HWY 20 TO INDUSTRIAL BLVD, THEN TURN RIGHT, UNIT IS APPROX 0.25 MILES ON LEFT
RN102962222	TDCJ BARTLETT STATE JAIL	WILLIAMSON	FROM INTERSECTION OF CR 487 AA AND CR 301, TURN RIGHT FOR 1/4 MILES TO ARNOLD DR, TURN LEFT FOR 1/2 MILES TO ENTRANCE OF
RN102962743	TDCJ SAYLE UNIT	STEPHENS	4176 FM 1800 BRECKENRIDGE TX 76424 7301
RN102963360	TDCJ HENLEY UNIT	LIBERTY	7581 HIGHWAY 321 DAYTON TX 77535 3889
RN102963477	TDCJ GOODMAN UNIT	JASPER	349 PRIVATE ROAD 8430 JASPER TX 75951 9737
RN102963535	TDCJ SANCHEZ STATE JAIL	EL PASO	3901 STATE JAIL RD EL PASO TX 79938 8465
RN102963543	TDCJ PLANE SJ	LIBERTY	904 FM 686 DAYTON TX 77535 2299
RN102963600	TDCJ TRAVIS COUNTY STATE JAIL	TRAVIS	8101 FM 969 AUSTIN TX 78724 5716
RN102963758	TDCJ RUDD UNIT	TERRY	2004 LAMESA RD BROWNFIELD TX 79316 9599
RN102963873	TDCJ TELFORD UNIT	BOWIE	3899 HWY 98 NEW BOSTON TX 75570
RN102964400	TDCJ TORRES UNIT	MASON	125 PRIVATE ROAD 4303 HONDO TX 78861 3819
RN103142840	TDCJ CLEMENTS UNIT	POTTER	9601 SPUR 591 AMARILLO TX 79107 9606
RN103153557	TDCJ SAN SABA UNIT	SAN SABA	206 S WALLACE CREEK RD SAN SABA TX 76877 9516
RN103187118	61105338101 DR1 ADJ 5338	BRAZORIA	TDCJ SCOTT UNIT, NO LOCATION ON FILE
RN103192902	61105338401 DR1 ADJ 5338	BRAZORIA	TDCJ SCOTT UNIT, NO LOCATION ON FILE
RN103192902	61105338401 DR1 ADJ 5338	BRAZORIA	TDCJ SCOTT UNIT, NO LOCATION ON FILE
RN103780938	TDCJ HOSPITAL GALVESTON	GALVESTON	701 HARBORSIDE WAY KEMAH TX 77565 3083
RN103973681	ADJ 2898	CORYELL	TDCJ GATESVILLE UNIT, NO LOCATION ON FILE
RN103973681	ADJ 2898	CORYELL	TDCJ GATESVILLE UNIT, NO LOCATION ON FILE
RN104153515	TDCJ MURRAY UNIT	CORYELL	1916 HIGHWAY 36 BYP N GATESVILLE TX 76596 0003
RN104153515	TDCJ MURRAY UNIT	CORYELL	1916 N HIGHWAY 36 GATESVILLE TX 76596 4612
RN104218219	60804249001 DP1 ADJ 4249	WALKER	TDCJ ELLIS UNIT, NO LOCATION ON FILE
RN104218532	61202899001 DP ADJ 2899	CORYELL	TDCJ GATESVILLE UNIT, NO LOCATION ON FILE
RN104218532	ADJ 2899	CORYELL	TDCJ GATESVILLE UNIT, NO LOCATION ON FILE
RN104620182	TDCJ CRAIN UNIT	CORYELL	1401 STATE SCHOOL RD GATESVILLE TX 76599 0003
RN104776091	TDCJ DANIEL UNIT DISTRIBUTION CENTER	SCURRY	NO LOCATION ON FILE
RN104788062	WRPERM 5920	KAUFMAN	DIV PT ON EAST FORK TRINITY RIVER
RN104960950	11203915001 DP1 WRPERM 3915	HALE	NO LOCATION ON FILE
RN104960976	ADJ 5331	BRAZORIA	NO LOCATION ON FILE
RN104961016	ADJ 4241	HOUSTON	NO LOCATION ON FILE
RN104961065	60805060001 DP1 ADJ 5060	ANDERSON	TDCJ COFFIELD UNIT
RN105013254	WRPERM 5290	GRIMES	NO LOCATION ON FILE
RN105013262	ADJ 5290	GRIMES	NO LOCATION ON FILE
RN105013312	61205327001 DP1 ADJ 5327	BRAZORIA	TDCJ RAMSEY UNIT, NO LOCATION ON FILE
RN105614580	TDCJ BUFFALO RANCH		NO LOCATION ON FILE
RN105989107	TDCJ WAINWRIGHT UNIT GARDEN LAKE DAM	HOUSTON	2665 PRISON ROAD 1 LOVELADY TX 75851 5609
RN105989123	TDCJ WAINWRIGHT UNIT RESERVOIR DAM	HOUSTON	2665 PRISON ROAD 1 LOVELADY TX 75851 5609
RN106042583	TDCJ FERGUSON UNIT DAM	MADISON	12120 SAVAGE DR MIDWAY TX 75852 3654
RN106042658	TDCJ ELLIS UNIT DAM	WALKER	1697 FM 980 HUNTSVILLE TX 77343
RN106222334	TDCJ WATER HAULER RIII FACILITIES MAINT	BRAZORIA	NO LOCATION ON FILE
RN106749559	TDCJ WATER HAULER RI FACILITIES MAINTENANCE	WALKER	NO LOCATION ON FILE
RN109173047	TDCJ WATER HAULER RIV FACILITIES MAINTENANCE	BEE	111 BYRD ST BEEVILLE TX 78102 8988
RN110323276	FERGUSON UNIT	MADISON	FM 247, MIDWAY, TX 75852
RN110323284	TDCJ HUNTSVILLE UNIT	WALKER	12TH ST HUNTSVILLE TX 77342
RN110323292	TDCJ RAMSEY 1 UNIT	BRAZORIA	FM 655 ROSHARON TX 77583
RN110323326	TDCJ BETO I UNIT	ANDERSON	FM 645 TENNESSEE COLONY TX 75861
RN110342391	TDCJ HWY 655	BRAZORIA	HWY 655 HUNTSVILLE TX 77349 0001
RN110342409	TDCJ ELLIS 2	WALKER	FM 980 HUNTSVILLE TX 77349 0001
RN110679867	HWY 30 EAST BOUND W FM 2620	GRIMES	HWY 30 EAST BOUND W FM 2620 NEAR SHIRO TX
RN111769725	TDCJ WATER HAULER RII FACILITIES MAINTENANCE	ANDERSON	NO LOCATION ON FILE
RN111769865	TDCJ WATER HAULER RVI FACILITIES MAINTENANCE	CORYELL	1210 CORYELL CITY RD GATESVILLE TX 76528 2913

APPENDIX III.C

FACILITY SECURITY

Appendix III.C
Security Plan

The Former Landfill (FLF) covered by this permit application is a post-closure care unit. It is located within the Texas Department of Criminal Justice (TDCJ) Ellis Unit property boundary and is covered by the facility's security procedures.

According to 40 CFR 264.14, a facility is required to maintain security to prevent unknowing entry and minimize the possibility of unauthorized entry of persons or livestock onto the active portion of the facility. The TDCJ Ellis Unit is a maximum-security state penitentiary and is protected by twenty-four-hour surveillance, barrier and access control.

This section describes the facility security at the TDCJ Ellis Unit.

1. Guards – Armed guards are stationed at the only entrance to the facility twenty-four hours a day, seven days a week, fifty-two weeks a year to ensure that no one enters the premises without Texas Department of Criminal Justice authorization. Guards are also posted throughout the facility in towers, on horseback, and in motor vehicles to monitor facility activities and ensure facility security.

2. Enclosures – The perimeter of the landfill is enclosed within a three-strand barbed wire fence with a single gate for access, which remains closed and locked. The facility is bordered by cross-fenced pasture and farmland.

3. Entry – All access into the facility is monitored and restricted to authorized personnel only. Access to the facility is restricted to a single roadway, monitored by several guard towers.

Unauthorized entry into the FLF would require:

- Entering the premises of a maximum security state penitentiary and passing through several guard stations unnoticed; and

- Escaping the attention of numerous mounted guards throughout the facility; and

Signage is not required by 40 CFR 264.14(c) because part (a)(1) requires that physical contact with the waste "…within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility". Since the facility is not active, physical contact is not likely. Part (a)(2) requires that "disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of this part". Again, the facility is not active, the waste is capped, and the facility is a maximum-security penitentiary.

APPENDIX III.D

INSPECTION PROGRAM

Appendix III.D
Inspection Schedule

Table of Contents

1.0 General Information

1.1 Purpose and Basis

This document is intended to demonstrate the Texas Department of Criminal Justice (TDCJ) Ellis Unit has an Inspection Program meeting the requirements of the following regulations for hazardous waste management, as applicable:

40 CFR §264.15	General Inspection Requirements
40 CFR §264.25(a)(6)	Equipment
40 CFR §264.33	Emergency Equipment
40 CFR §264.303	Landfills
40 CFR §270.21(d)	Landfills

1.2 Amendments to Inspection Program

The Inspection Program must be modified by Class 2 modification whenever the frequency or content of the inspection schedule changes.

2.0 General Inspection Requirements

2.1 Inspection Schedule

Regular inspections are conducted for equipment malfunctions, structural deterioration, and discharges that could threaten human health or cause a release of hazardous wastes or hazardous constituents to the environment. The inspection frequency is determined on a unit-specific (or equipment-specific) basis, considering the time necessary to correct problems before human health or the environment are threatened and according to applicable requirements. No problems have been noted since the permit was issued in 2002.

A written Inspection Schedule (Table III.D) has been prepared to summarize the inspection items and specify the frequency of the inspection and the potential problems associated with the hazardous waste management unit or equipment. The Inspection Schedule serves as the basis for formulation of the unit- and equipment-specific logs actually used in the inspections and maintained as a record of the inspection and any follow-up activities.

2.2 Responsibility

The guard staff is responsible for inspecting the security barriers (fences, gates, etc.) of the perimeter of the facility at least once per day. The patrol guard reports findings to the security supervisor, who immediately takes corrective action, if necessary.

Quarterly inspections of the FLF and Former Penta Tank Area are conducted by the Environmental Department.

Emergency equipment at the site includes fire extinguishers in the shop, fire hydrants on-site, and a telephone system. The fire extinguishers are checked annually. The fire hydrants are checked annually by the local fire department. The telephone system is used daily.

3.0 Inspection Follow-up

3.1 Corrective Actions

At the frequency specified in the Inspection Schedule, inspections are made by trained personnel using written inspection logs that address, at a minimum, the elements, potential problems, and corrective actions listed in the Inspection Summary (see an example inspection form in Figure III.D-1). If an inspection reveals that non-emergency maintenance is needed, it will be completed as soon as possible. If a hazard is imminent or has already occurred during the course of an inspection or at any time between inspections, remedial action will be taken immediately. In the event of an emergency involving the release of hazardous waste to the environment, efforts will immediately be directed towards containing the waste, removing it, and subsequently decontaminating the affected area. All items noted as needing corrective action on the inspection log are addressed, and documentation of the corrective action is made directly on the log.

3.2 Recordkeeping

Each inspection log contains:

- Date and time of inspection;
- Name of inspector;
- Notation of observations made; and
- A space for documentation of corrective actions taken, including the date.

Once completed, the log is filed and retained on-site for at least three years from the date of inspection. As the site is a prison, records are maintained in the Environmental Office located 15 miles from the main gate. The site is barred from having computers with internet access; therefore, records cannot be shared electronically.

Tables/Figures/Drawings for Inspection Program

Tables

None

Figures

Figure III.D-1 – Example Inspection Log

Drawings

None

Figure III.D-1. Example Inspection Log for the FLF and Former Penta Tank Area

Date	Time	Inspector	Landfill Integrity (Cap and Cover)	Vegetation	Run-On Control/Run-Off Control (Surface Drainage)	Standing Water[a]	Fences/Gates	Comments

[a] Standing water inspection is performed after storms.

All inspections performed as in Table III.D.

SECTION IV WASTES AND WASTE ANALYSIS

IV. Wastes and Waste Analysis

Provide all Part B responsive information in Appendix IV. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

A. Waste Management Information - RESERVED

B. Waste Managed In Permitted Units

For all hazardous waste management facilities and for inclusion into a permit, complete Table IV.B. - Wastes Managed In Permitted Units for each waste and debris to be managed in a permitted unit. Provide a description, EPA waste codes, and TCEQ waste form codes and classification codes. Guidelines for the Classification & Coding of Industrial Wastes and Hazardous Wastes, TCEQ publication RG-22, contains guidance for how to properly classify and code industrial waste and hazardous waste in accordance with 30 TAC 335.501-335.515 (Subchapter R).

Applicants need not specify the complete 8-digit waste code formulas for their wastes but must include the 3-digit form codes and 1-digit classification codes. This allows the applicant to specify major categories of wastes in an overall manner without having to list all the specific waste streams as generated.

C. Sampling and Analytical Methods - RESERVED

D. Waste Analysis Plan - RESERVED

TABLE IV.B

WASTES MANAGED IN PERMITTED UNITS

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
1	Paint Waste	N/A	279760
2	Food Waste	N/A	
3	Waste Paints	F005, F003, D001	
4	Empty Containers	N/A	2022061, 110450
5	Roofing Material	N/A	
6	Light Bulbs	N/A	
7	Oily Sludges	N/A	
8	Wood Chips/Sawdust	N/A	280190, 280200
9	Metal Scrap	N/A	270350
10	Paint Booth Arresters	D007, D008	178490
11	Waste Microfilm		181490
12	Wastewater Sludge	N/A	102690
13	Polymer	N/A	110121
14	Plastics	N/A	280270
15	Oily Sand	N/A	0005489
16	Blasting Sand	N/A	0001490
17	Roofing Mastic	N/A	
18	Concrete Curing Compound	N/A	
19	Heavy Metal Contaminated Sludge		140080
20	Contaminated Rags		183480

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
21	Off Spec Product		185810
22	Filter Cartridges		279760
23	Paint Chips		
24	Steel Grit	N/A	
25	Ashes from Burned Lacquer Stripper		
26	Waste Pesticides and Herbicides		980480
27	Waste Paint Related Materials	D001, F003, F005	910650
28	Waste Tar	N/A	180360
29	Latex Paint		180450
30	Boiler Treatment Chemicals		102660
31	Seasonings - Solid	N/A	180450
32	Fiberglass	NA	280280
33	Waste Corrosive Liquid	D002	978400
34	Waste Flammable Liquid	D001	910100

SECTION V ENGINEERING REPORTS

V.

Provide all Part B responsive information in Appendix V. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

For multiple units provide an include all Part B responsive information in a separate Appendix for each unit

The engineering report represents the conceptual basis for the storage, processing, or disposal units at the hazardous waste management (HWM) facility. It should include calculations and other such engineering information as may be necessary to follow the logical development of the facility design. Plans and specifications are an integral part of the report. They should include construction procedures, materials specifications, dimensions, design capacities relative to the volume of wastes (as appropriate), and the information required by 40 CFR 270.14(b)(8), 270.14(b)(10). Since these reports may be incorporated into any issued permit, the report should not include trade names, manufacturers, or vendors of specific materials, equipment, or services unless such information is critical to the technical adequacy of the material. Technical specifications and required performance standards are sufficient to conduct a technical review. For landfills, surface impoundments, and waste piles, a Construction Quality Assurance Plan, which considers the guidance in EPA publication 530-SW-85-014, Minimum Technology Guidance on Double Liner Systems for Landfills and Surface Impoundments; Design, Construction, and Operation, and/or EPA/600/R-93/182, Quality Assurance And Quality Control For Waste Containment Facilities, should be submitted.

For facilities which will receive wastes from off-site sources, the engineering report must also contain information on the units which will manage these off-site wastes in accordance with 30

Certain ancillary components or appurtenant devices must be addressed in the Part B application. These include but are not limited to sumps, pipelines, ditches, and canals. The technical information and the level of detail required will vary with the nature, scope, and location of the ancillary component. At a minimum they should be included in descriptions of piping and process flow. More information may be required. A single area containing a large number of ancillary components or a remote appurtenant device in an unusually sensitive location may warrant some specific permit requirements. All ancillary components must be included in calculating closure cost estimates.

In each of the unit-specific sections, describe precautions taken to prevent accidental commingling of incompatible wastes. If reactive or ignitable wastes are to be managed, or if incompatible wastes are deliberately commingled, provide information to ensure that precautions are taken to avoid danger due to:

- generation of extreme heat or pressure, fire, explosion, or violent reaction;
- production of uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health;
- production of uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion;
- damaging the structural integrity of the device or facility containing the waste; or
- threatening human health or the environment by any other means.

Comprehensive consideration should be given to ensure that the facility is designed in accordance with good public health and hazardous waste management practices. The application will be evaluated primarily for the aspects of design covered by the regulations. Nothing in any approval is intended to relieve the facility owner or operator of any liabilities or responsibilities with respect to the design, construction, or operation of the project.

A. General Engineering Reports

1. General Information

Complete Table V.A. - Facility Waste Management Handling Units listing all past, current or proposed units. *[Indicate units' status as* Active, Closed, Inactive *(built but not yet managing waste)*, Proposed *(not yet built)* . *Indicate appropriate units for Capacity information.]* **Note for renewals and modifications involving adding or dropping units from the permit:** List all TCEQ Permit Unit Numbers that have been assigned previously as in a current permit Attachment D -Authorized Facility Units table and do not reuse or reassign permit numbers for units that have been replaced, closed, removed from the permit, or transferred to other ownership. All Notice of Registration (NOR) Numbers must match the State of Texas Environmental Electronic Reporting System (STEERS) and may not be reused for replacement units.

Provide an overall plan view of the entire facility. Identify each hazardous or industrial solid waste management unit (container storage area, tank, incinerator, etc.) to be permitted in relation to its location and the type of waste managed in that unit. Also provide a plan view at an appropriate scale to clearly show the location of all hazardous waste management units to be permitted on one or more 8 1/2" x 14" sheets. Indicate on this plan view how the design or operation provides for buffer zones or waste segregation as appropriate for incompatible, ignitable, or reactive wastes.

Submit a topographic map or maps of the facility which clearly shows the information specified in 40 CFR 270.14(b)(19), 270.14(c)(3), and 270.14(d)(1)(i) (for large HWM facilities, the TCEQ will allow the use of other scales on a case-by-case basis). Please note that the term "facility" includes all contiguous land, structures, other appurtenances, and improvements on the land for storing, processing, or disposing of hazardous and

2. Features to Mitigate Unsuitable Site Characteristics

For all new hazardous waste management storage and/or processing facilities or areal expansions of existing hazardous waste management storage and/or processing facilities, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(a)(1) and (a)(3) through (9).

3.

4. Provide detailed plans and specifications which when, accompanied by the engineering report, will be sufficiently detailed and complete to allow the Executive Director to ascertain whether the facility will be constructed and operated in compliance with all pertinent permitting requirements. Engineering plans and specifications must be prepared under the supervision of and sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act. For some facilities, plans in the form of a standard piping and instrumentation diagram will be sufficient. Overall

B. Container Storage Areas -RESERVED
C. Tanks and Tank Systems -RESERVED
D. Surface Impoundments - RESERVED
E. Waste Piles -RESERVED
F. Land Treatment Units -RESERVED
G. Landfills

1. Provide as-built plans and specifications for the final cover system, individually for each unit that is sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request.

2. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number i

3. Comp
landfill.

4. Complete Table V.G.4. - Landfill Leachate Collection System used for the landfill.

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(5), (6), (9), (10), and (12), 335.173, 40 CFR 264.19, 264.300, 264.301, 264.302, 264.303(a), 264.304, 264.309, 264.312, 264.313, 264.315-264.317, and applicable requirements of 270.21. The text of the report should be written to supplement engineering plans, specifications, and test results necessary to provide a detailed description of how the landfill will comply with these standards.

For landfills at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(e).

For all landfills, include in the report the following information.

1. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type.

2. If a landfill will manage ignitable or reactive waste, as indicated on Table V.G.1,

describe in the engineering report the procedures used to ensure compliance

3. If a landfill will manage incompatible waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.313.

4. If a landfill will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.317.

5. Describe the landfill. A plan view and cross-section of the landfill should be included with the engineering report. As appropriate, detailed plan, elevation, cross-section of landfill containment facilities shall be included with the report.

6. C

   We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method, such as those found in ASTM publications, and approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

   a. Complete Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.

   b. In the engineering report, describe the design, installation, construction, and operation of the liner and leachate collection system. The description must demonstrate that the liner system will prevent discharge to the land, groundwater, and surface water. The following analyses should be included as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

      (1) Seaming method
      (2) Surface preparation method
      (3) Tensile Strength
      (4) Impact Resistance
      (5) Compatibility Demonstration
      (6) Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

      (7) Waste Migration Analysis (based on head, porosity, and permeability) for the most mobile and least attenuated waste constituents
      (8) Atterberg Limits, % passing a #200 sieve, and Permeability
      (9) Moisture Content
      (10) Standard Proctor

   For Leachate Collection System

For incorporation into the permit, complete Table V.G.4. - Landfill Leachate Collection System and Table V.G.5 - Landfill Soil Specifications used for the landfill.

- (11) Capacity of the system:
  - (a) rate of leachate removal
  - (b) capacity of sumps
  - (c) thickness of mounding and n
- (12) Pipe Material and Strength
- (13) Pipe Network Spacing and Grading
- (14) Collection Sump(s) Material and Strength
- (15) Drainage Media Specifications and Performance
- (16) Analyses showing that pipe and pipe perforation clogging and allow free liquid access to the pipe.
- (17) Compatibility Demonstration

c. State whether the liner system components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

d. Provide a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.

e. Whether the leachate collection components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

f. Provide a Response Action Plan that proposes actions to be taken in the case of exceedance of the landfill Action Leakage Rate. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.304.

7. For Dikes:
   a. Slope Stability Analysis;
   b. Hydrostatic and Hydrodynamic Analyses
   c. Ability to withstand scouring from leaking liner.

8. Landfills that receive waste on or after May 8, 1985 (or for newly-regulated units, the effective date of the new RCRA regulation) into new units and/or lateral expansions or replacements of existing units must meet the minimum technological requirements of the Hazardous and Solid Waste Amendments of 1984, unless an appropriate waiver is granted by the Commission. The owner or operator of each new landfill unit for which the construction commences after January 29, 1992, or each lateral expansion of an existing landfill unit where construction commences after July 29, 1992, or replacement of an existing landfill unit that commence reuse after July 29, 1992 must install two or more liners and leachate collection and removal system unless commission approves alternate design or operating practices. Plans and specifications for both new and existing landfills must demonstrate conformity with 30 TAC 335.173 and 40 CFR 264.301(c).

9. Site Development Plan

should include rate of waste deposition, waste segregation, average lift size, maximum lift, average cell or trench size, maximum cell or trench size, and other information necessary to depict how the landfill will be developed. Do not include liner or leachate collection system information, closure information, or handling of special wastes. This will be included elsewhere in the report.

10. Run-on Control [30 TAC 335.173(g)]

The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 100-year, 24-hour storm.

In the engineering report, include the following analyses:

a. Run-on volume and depth calculations from the peak
year, 24-hour storm; and

b. For ditches on the plant property, back-water calculations.

Collection and holding facilities (e.g., tanks or basins) associated with the run-on control system must be emptied or otherwise managed expeditiously. [30 TAC 335.173(i)]

11. Run-off Control [30 TAC 3

The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control the water volume resulting from a 100-year, 24-hour storm.

Include all analyses used t

Collection and holding facilities (e.g., tanks or basins) associated with run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. [30 TAC 335.173(i)]

12. Wind Dispersal [30 TAC 335.173(j)]

If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to minimize wind dispersal. Based upon the characteristics of the material to be landfilled describe the likelihood of wind dispersal occurring. Describe in detail any method and/or control mechanism used to prevent wind dispersal.

13. L

If liquid waste or waste containing free liquids is to be stabilized and then placed in the landfill, the procedures used to stabilize the waste must be described in the engineering report. The waste must be treated prior to landfilling using a treatment technology that does not solely involve the use of a material that functions primarily as a sorbent. Provide supporting documentation to verify that an appropriate stabilization procedure is used to comply with 30 TAC 335.175.

14. The Commission may approve an alternate design or operating practice for a landfill if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.301(d)]:

a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection

b. Will allow detection leaks of hazardous constituents through the top liner at

15. Exemption from Double-Liner Requirements for Monofills [264.301(e)]

Owners or operators of hazardous waste monofills will be exempted from the double-liner requirements if the Commission finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics are at least as effective as a double liner in preventing migration of hazardous constituents to the groundwater or surface water. If an exemption is sought, submit detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the groundwater or surface water at any future time.

16. Above-grade Benefits

The engineering report must evaluate the benefits, if any, associated with the construction of the landfill above existing grade at the proposed site, the costs associated with the above-grade construction, and the potential adverse effects, if any, which would be associated with the above-grade construction. [TX. Health

17. Feasibility Study - Applicable to New Hazardous Waste Landfills or Areal Expansions of Existing Hazardous Waste Landfill

In accordance with the Health and Safety Code Section 361.106 and 30 TAC Section 335.205(a)(2), provide a feasibility study demonstrating that there is no practical, economic, and feasible alternative that is reasonably available to manage the types and classes of hazardous wastes to be disposed of at a proposed new hazardous waste landfill or the areal expansion of an existing

H. Incinerators -RESERVED
I. Boilers and Industrial Furnaces -RESERVED
J. Drip Pads -RESERVED
K. Miscellaneous Units -RESERVED
L. Containment Buildings -RESERVED

TABLE V.A

FACILITY WASTE MANAGEMENT HANDLING UNITS

Permit No. 50361

Permittee: TDCJ Ellis Unit

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
SWMU A and SWMU B	Hazardous Waste Landfill	008	Former Hazardous Waste Landfill	65,500 CY	Closed as Landfill

1. Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2. Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.

3. If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of Table V.A.

TABLE V.G.1

LANDFILLS

Table V.G.1. - Landfills

Permit Unit No.	Landfill	N.O.R. No.	Waste Nos.[1]	Rated Capacity	Dimensions[2]	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage Ignitable, Reactive, Incompatible, or F020, F021, F022, F023, F026, and F027 Waste (state all that apply)	Unit Status
SWMU A and B	Haz. Waste	008	1-34	65,500 cy	4 acres	See note below	N/A	N/A	Closed

[1] from Table IV.B, first column

[2] Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

Note - Wells are screened between 15 and 30 feet below ground surface, and the waste was placed in trenches approximately 10 feet deep. This indicates that wells are screened at or below the depth at which waste was placed. No excursions have been reported in the groundwater monitoring program. From the Former Landfill Engineering Report (URS, July 2013) - reference included in Section V.

APPENDIX V.A

GENERAL ENGINEERING REPORT

Appendix V.A
General Engineering Report

Table of Contents

1.0 Introduction

The purpose of this General Engineering Report is to provide facility-wide information relating to the Texas Department of Criminal Justice (TDCJ's) Ellis Unit in accordance with 40 CFR §270.14(b)(11) and (19).

The TDCJ Ellis Unit is located on an approximately 11,427 acre tract, twelve miles north of Huntsville at 1697 FM 980 in Walker County, Texas. The Ellis Unit is a correctional institution housing approximately 2,500 inmates. Activities at the Ellis Unit include a Cotton Gin, Cow/Calf Operation, Egg Laying Operation, Farm Shop, Edible and Field Crops, Security Horses/Dogs, and Swine Farrowing/Nursery/ Finishing Operations, bus repair, garment factory and furniture/woodworking.

Wastes managed at this facility are non-industrial in nature and are generated on-site from the daily prison operations. No hazardous wastes are currently generated at the facility.

This General Engineering Report is provided to convey information on a facility-wide perspective. The Former Landfill (FLF) Engineering Report in this application addressed unit-specific issues.

2.0 Facility Layout

Figure V.A-1 reflects the boundaries of the Ellis Unit as well as features of surrounding areas. They present the following information for the facility:

- Topographic features including contours;
- Surface water features (perennial, intermittent, canals, and ditches);
- Boundaries of the facility;
- Significant structures;
- Land uses;
- Buildings; treatment, storage, or disposal operations; or other structure (recreation areas, runoff control systems, access and internal roads, storm, sanitary, and process sewerage systems, loading and unloading areas, fire control facilities, etc.);
- Barriers for drainage or flood control;
- Location of operational units within the HWM facility site, where hazardous waste is (or will be) treated, stored, or disposed;
- Location of withdrawal (i.e., water supply) wells;
- Surrounding areas for at least 1 mile from the perimeter;
- Wind rose;
- Roads;
- Waste management units;
- Identification of groundwater flow;
- Access control (gates and fences);
- Sewer lines; and
- Floodplain map.

3.0 Facility Siting Information

The purpose of this section is to provide facility-wide information to demonstrate that criteria for siting conditions (i.e., floodplain areas, geological constraints, and sensitive environmental receptors) are met for the FLF at the Ellis Unit. Information contained in this section (and corresponding regulatory citation) is as follows:

- Facility location information (40 CFR §270.14(b)(11));
- Location of floodplain (40 CFR §270.14(b)(19)(ii));
- Environmental setting (40 CFR §270.14(b)(19)); and
- Sensitive environmental receptors (30 TAC §335.204).

A topographic map showing the information required by 40 CFR §270.14(b)(19)is provided as Figure B.V.A-1.

3.1 Location of Floodplain

The 100-year flood plain at the Ellis Unit occurs at approximately 150 ft-MSL (feet mean sea level). The former HWLF is at elevation 138-139 ft MS; however, a 25-year flood levee surrounds the site which has a maximum height of 144.5 ft-MSL.

Based on discussions with facility staff, the FLF area has never been inundated during a severe storm or hurricane.

Figure B.V.A-1 reflects the location of the 100-year floodplain surrounding the Ellis Unit.

3.2 Environmental Setting

The TDCJ Ellis Unit is located on an approximately 11,427 acre tract, twelve miles north of Huntsville at 1697 FM 980 in Walker County, Texas. The Ellis Unit is a correctional institution housing approximately 2,500 inmates. Activities at the Ellis Unit include a Cotton Gin, Cow/Calf Operation, Egg Laying Operation, Farm Shop, Edible and Field Crops, Security Horses/Dogs, and Swine Farrowing/Nursery/ Finishing Operations, bus repair, garment factory and furniture/woodworking.

Wastes managed at this facility are non-industrial in nature and are generated on-site from the daily prison operations. No hazardous wastes are currently generated at the facility.

Water Supply

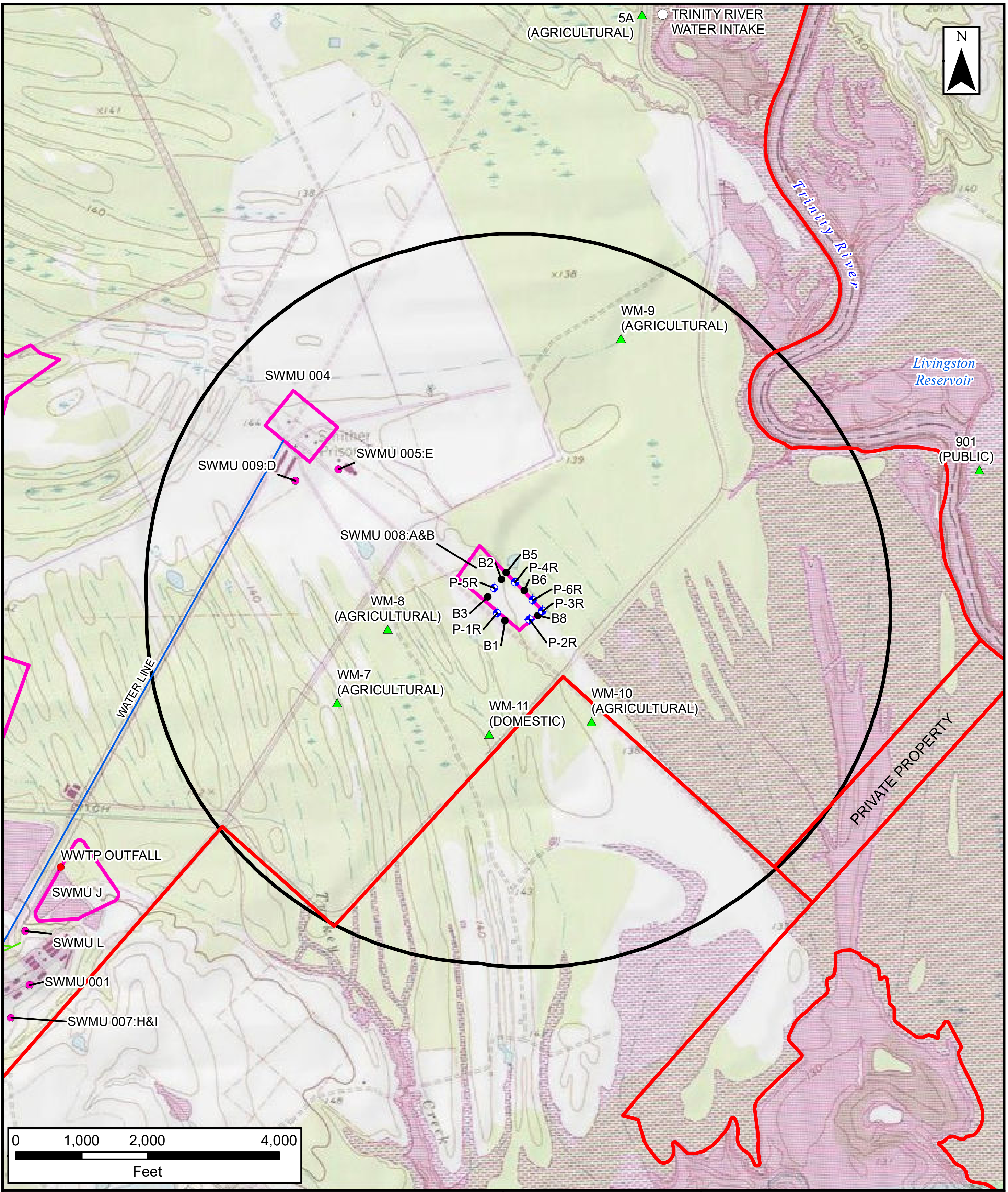
Water supply to the facility is treated surface water (Trinity River) delivered through a meter from the City of Huntsville (PWS 2360002). The City in turn, purchases the water from the Trinity River Authority (TRA). Prevention of contamination to water supplies is achieved through good operating procedures, including loading and unloading of materials, immediate spill cleanups, maintenance of controls, valves, pumps, etc.

Unit Location

Per 40 CFR §270.14(b)(11), the facility is not listed in 40 CFR 264, Appendix VI and therefore seismic standards do not apply. Per 30 TAC §335.204, the FLF is not located in near sensitive environmental receptors.

Tables/Figures/Drawings for General Engineering Report

Figures



Path: \\na.aecomnet.com\lfs\AMER\Austin-USAUS2\DCS\Projects\ENV\TDCJ\TDCJ Ellis\HW Permit Renewal\2024 Renewal\09_GIS\MXD\Topographic Map.mxd

Legend

✦	Monitoring Well Location	○	Water Supply
●	Soil Borings	—	Water Line
▲	Water Wells	▭	Solid Waste Management Units (SWMUS)
●	Outfalls	▭	Site Boundary

AECOM

13460 Briarwick Drive, Suite 200
Austin, TX 78729
Phone: (512) 454-4797
Fax: (512) 419-5474

Title:
Figure V.A-1
Topographic Map

Project:
TDCJ Ellis Unit, RCRA Renewal
HW-50361

Client:
Texas Department of Criminal Justice

Scale:	Drawn by:	Date:
As Shown	KPL	6/4/2024
	Chk'd by:	Date:
	JST	6/4/2024

Project No.:	File Name:	Figure:
60726186	Topographic Map.mxd	1

APPENDIX V.G. - FORMER LANDFILL ENGINEERING REPORT

Attachment B.V.G
Former Landfill Engineering Report

Table of Contents

Professional Engineer Certification

The Engineering Report for the Former Landfill at the TDCJ Ellis facility outlines procedures used by TDCJ for designing, constructing, operating (as applicable), and closing such units in compliance with federal (Title 40 of the Code of Federal Regulations [40 CFR] Part 264 Subpart N – Hazardous Waste Landfills, and Subpart G – Closure and Post-Closure Care) and state (Title 30 of the Texas Administrative code [30 TAC] §335.174, and other applicable sections) regulations. This engineering report is not an engineering design; rather, it documents internal engineering and design standards used by TDCJ for the FLF. Engineering services associated with the FLF and performed for TDCJ by an independent engineer shall be sealed in accordance with 22 TAC §131.166.

For the purposes of the Resource Conservation and Recovery Act (RCRA) Part B Permit, the information contained in this Engineering report has been reviewed by an independent professional engineer. This is to certify that I have working knowledge of the information presented in the FLF Engineering Report and have found that the following sections are consistent with accepted engineering principles and practice.

Section	Title	Revision No. and Date
3.0	Landfill Design	Rev. 0, January 2013
3.0	Landfill Design	Rev. 2, July 2013

PE Certification and Seal provided on page iv.

Certification

I certify under penalty of law that this engineering report was prepared under my direction or supervision and that all subsequent attachments were review in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who performed the investigation evaluation, analysis, calculations, and planning during design, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

LEO M.J. DIELMANN, III
62814

Signature:____________________ Date 7/12/2013

Leo M. J. Dielmann, III, P.E.,
URS Corporation, a Nevada Corporation (TX3162)
9400 Amberglen Boulevard
Austin, Texas 78729

1.0 Introduction

The Former Landfill (FLF) is located in the eastern portion of the Ellis Unit (see Drawing B.V.A-1 in the General Engineering Report) on approximately 4 acres of land. The FLF was operated from 1976 to 1988 and was closed in 1989.

The FLF engineering report with available design information is provided in the following sections. Many items normally included in a landfill engineering report have already occurred (e.g., design, wastes accepted, site development plan, etc.); therefore, a brief summary of the history of the landfill is provided in Section 2.0.

2.0 Site Conditions

The FLF was in service from 1976-1988 and as such, is a pre-minimum technology requirements (MTR) landfill that was constructed using a “trench and fill” methodology. Trenches were excavated to depths of approximately 10 feet (ft) below ground surface (bgs), filled with waste material, and then backfilled with native soils at the FLF. No waste records are available; however, the then Texas Water Commission (TWC) used 1994-1996 site documentation to develop a list of potential wastes. The only identified hazardous wastes were paint and paint-related materials and it was not confirmed if any/all of these were disposed in the FLF. Other wastes that had potentially been disposed in the FLF included non-hazardous, Class 1 and 2 wastes such as empty containers/plastics, wood chips/sawdust, wastewater sludge, dirty rags, ash, roofing materials, scrap metal, plant refuse, filters and light bulbs.

In 1989 the FLF was capped with ~4ft clay and deed recorded as municipal landfill. However, TWC assumed the cap consisted of uncompacted fill because no documentation was available and negotiated with the Texas Department of Criminal Justice (TDCJ) to submit a permit application for the inactive FLF as if it were a verified hazardous waste landfill. The permit application was submitted in 2001 and the permit issued in 2003. The permit indicates that the FLF is pending closure and requires a 4-ft compacted clay cap and quarterly detection monitoring.

The FLF is in Detection Monitoring as described in Section VI of this RCRA Permit Application. An extensive site geology report was submitted in the 2001 RCRA permit application and is reproduced on CD in this renewal as Section VI.

3.0 Landfill Design

The FLF is a pre-MTR landfill that was developed by excavating several trenches to create cells that were then filled with solid wastes.

3.1 Bottom Liner

Based on the subsurface investigation performed in 1990 during the installation of the groundwater monitoring wells, the natural bottom liner hydraulic conductivity ranges from $1x10^{-7}$ to $1x10^{-9}$ cm/s. The FLF does not have a leak detection or leachate collection system, but does have a detection monitoring system consisting of up- and down-gradient wells. The wells are screened between 15 and 30 ft below ground surface, and the waste was placed in trenches approximately 10 feet deep. This indicates that wells are screened at or below the depth at which waste was placed. No excursions have been reported in the groundwater monitoring program.

The hydraulic gradient across the landfill is <0.5 ft which indicates that water is not moving quickly across the site.

3.2 Cap Design

The FLF was closed by placing a minimum of 4 feet of clay-rich soil over the waste to form a clay cap and seeding the cap with grass. The cap topography is such that it promotes drainage with slopes between 1.6% and 1.9%, has an established vegetative cover, and has no known record of ponding water. If water were infiltrating the landfill through the cap, the hydraulic gradient would be expected to be much greater. The preponderance of data indicates that there is no leakage through the cap.

Additional discussion of the existing cap and geotechnical investigations that were conducted is provided in the FLF closure plan and report in Section VII of this application.

4.0 Flood Zone Designation

40 CFR §264.18(b) and 30 TAC §335.204 place restrictions on locating a land-based unit in the 100-year floodplain. Under hurricane conditions, portions of the facility property are located within the 100-year floodplain (USGS maps supporting this determination are located in Section V of this application); the FLF was built before these restrictions were promulgated and has since been closed. The FLF is protected from a 24-hr, 25-year storm by the Ellis Farm Levee which is at 144.5 ft-MSL (the FLF is at elevation 138 to 139ft). To further protect the FLF (which is closed and capped) from potential erosion or washout, the vegetative cover layer is maintained.

5.0 Wastes Accepted

As previously mentioned the only identified hazardous wastes potentially disposed in the FLF were paint and paint-related materials and it was not confirmed if any/all of these were disposed in the FLF. Other wastes that had potentially been disposed in the FLF included non-hazardous, Class 1 and 2 wastes such as empty containers/plastics, wood chips/sawdust, wastewater sludge, dirty rags, ash, roofing materials, scrap metal, plant refuse, filters and light bulbs.

6.0 Unit Development/Management Plan

The FLF is currently closed and will move into formal post-closure care upon approval of this RCRA permit renewal. As such, a unit development plan is not needed.

7.0 Maintenance, Monitoring, and Control

7.1 Run-on and Run-off Control

The FLF is a pre-MTR landfill; as such, run-on and run-off controls were not designed. Run-off control is generally provided by the cap which is sloped to promote run-off into nearby drainage ways (see Figure 7-1).

7.2 Wind Dispersal Control

Wind dispersal control is no longer needed at the closed landfill.

7.3 Site Access Control

Site security at TDCJ's Ellis Unit is managed as outlined in Facility-Wide Security Plan in Section III of this application. Access to the FLF is restricted to authorized personnel.

7.4 Inspection Procedures

The FLF is inspected on a semi-annual basis and after rainstorms using the procedures in the Inspection Plan provided in Section III of this application. Records of both the inspections and corrective actions taken are maintained in the unit's operating record for three years.

The designated landfill inspector is responsible for:

- Performing the inspections;
- Noting problems or irregularities on the inspection form;
- Making sure that, if needed, appropriate corrective actions are taken; and
- Noting and initialing the time and date of completion and nature of corrective action taken (if any).

7.5 Groundwater Monitoring

The FLF is currently in detection monitoring, as described in Section VI of the application.

8.0 Closure and Post-Closure Care

The FLF was capped in 1989; however, formal closure has not occurred and the unit is currently identified as “pending closure” in the RCRA permit. With the approval of this renewal application the unit will move into post-closure care which will be performed according to the procedures in the FLF Post-Closure Care Plan in Section VII of the application.

Post-closure care cost estimates are not required since TDCJ is a state agency.

9.0 Recordkeeping

9.1 Surveying and Recordkeeping

The FLF has been surveyed in accordance with the general surveying and recordkeeping requirements of 40 CFR §264.309 (landfills). The location and dimensions are noted on a map with respect to permanent benchmarks.

9.2 Deed Recordation

The deed recordation and land use notices for the FLF were submitted to the County Clerk of Walker County, Texas, in September 1989 in accordance with 30 TAC 335.5.

Tables/Figures/Drawings for Former Landfill Engineering Report

Tables

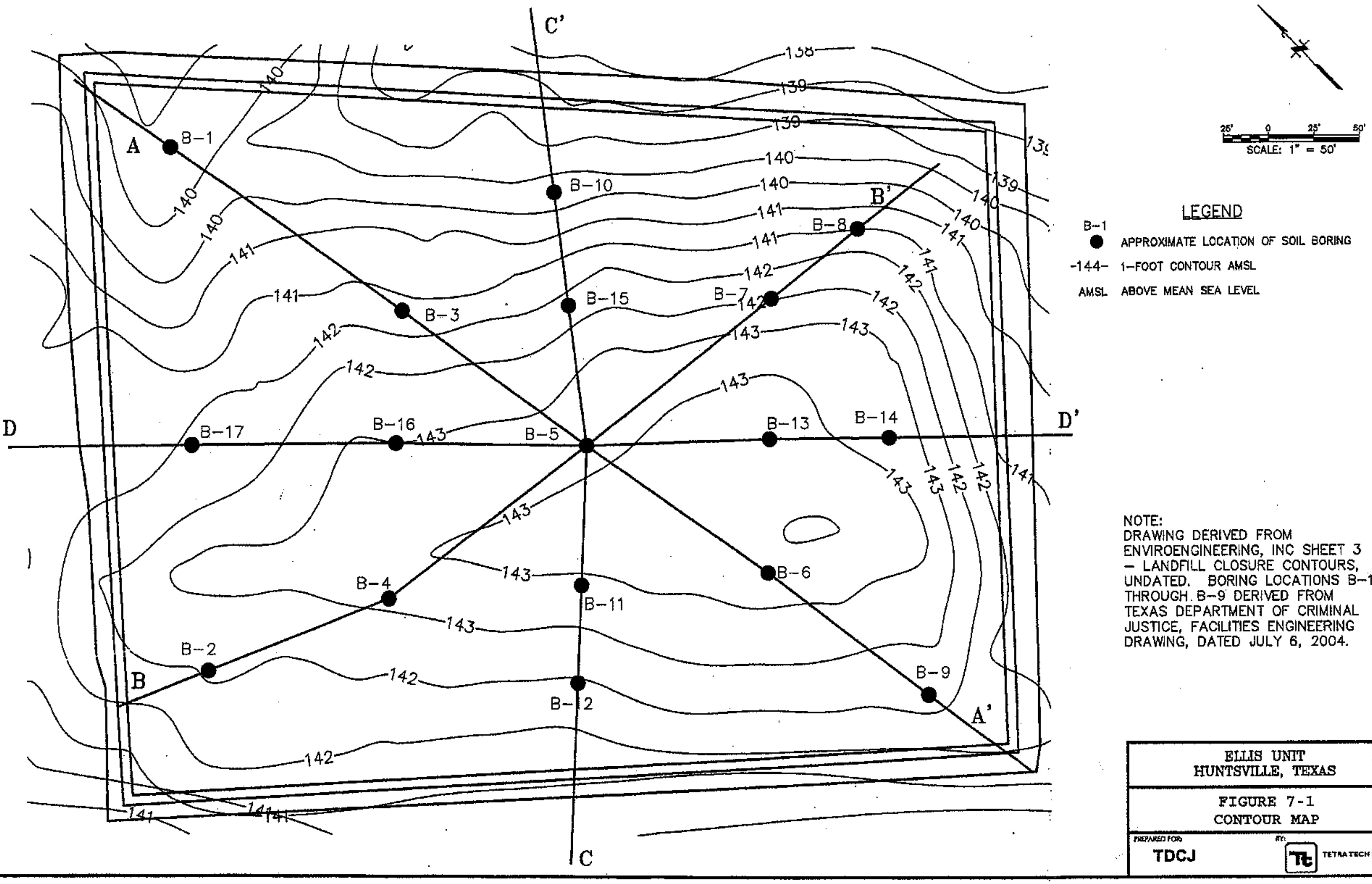
None

Figures

Figure 7-1 – Contour Map

Drawings

None



LEGEND

B-1 ●	APPROXIMATE LOCATION OF SOIL BORING
-144-	1-FOOT CONTOUR AMSL
AMSL	ABOVE MEAN SEA LEVEL

NOTE:
DRAWING DERIVED FROM ENVIROENGINEERING, INC SHEET 3 – LANDFILL CLOSURE CONTOURS, UNDATED. BORING LOCATIONS B-1 THROUGH B-9 DERIVED FROM TEXAS DEPARTMENT OF CRIMINAL JUSTICE, FACILITIES ENGINEERING DRAWING, DATED JULY 6, 2004.

ELLIS UNIT
HUNTSVILLE, TEXAS

FIGURE 7-1
CONTOUR MAP

PREPARED FOR:
TDCJ

BY:
TETRA TECH EM INC

T:\0400\5\51286\ TDCJ_YS.dwg 01/19/2007 eshwed TX

SECTION VI GEOLOGY REPORT

VI. Geology Report

Provide all Part B responsive i
format organize your submitta **Format of Hazardous Waste permit Application and Instructions.**

This portion of the application applies to owners or operators of new hazardous waste management facilities; areal and/or capacity expansions of existing hazardous waste management facilities; and existing industrial solid waste facilities that store, process or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles (except those waste piles that meet the requirements of Section V.E.10.b. of this application), and tanks or drip pads which require a contingent post-closure plan.

For a new Compliance Plan or modification/amendment to an existing Compliance Plan of Section XI of this application, submit a Geology Report which contains updated site geologic information derived from on-going investigations since submittal of the last Permit modification/amendment application.

Submit a Geology Report which includes at a minimum the following information. This report and all specifications, details, calculations/estimates and each original sheet of plans, drawings, maps, cross-sections, other graphics, such as limits of contamination maps, etc. or any other geoscientific work must be signed and sealed by a Professional Geoscientist licensed in the State of Texas under the

A. Geology and Topography

1. Active Geologic Processes

Provide a description and interpretation of the active geol
vicinity of the facility. This description should include:

a. An identification of any faults (active or otherwise) in the area of the facility. The preparer should determine which Holocene sediments or man-made structures have been displaced. The report should contain a description of the investigation techniques used to identify faults and should assess the degree, if any, to which a particular fault increases the long-term potential for waste migration. The clearance required from active faults to ensure that liner systems will not be disrupted will be based upon site specific factors such as the zone of significant surface deformation, uncertainty in locating the fault, activity of the fault, and a distance to provide a reasonable margin of safety. These issues should be addressed when discussing the offset of an industrial solid waste facility unit from an active fault.

To satisfy the requirements of 30 TAC 305.50(a)(4)(D) and 305.50(a)(10)(E), for a proposed hazardous waste management facility or a modification or amendment of a permit which includes a capacity expansion of an existing hazardous waste management facility, submit the following.

(1) A geologic literature review should be conducted, from which useful information on the possibility of faulting at a given site may be revealed. This includes, but is not limited to, maps of surface faults, subsurface structure, and field investigations by

(2) Descriptions and maps of faulting, fracturing, and lineations in the area are necessary. An aerial photo with lineation interpretations is suggested

(3) The maps and cross-sections are to be constructed using an amount of data necessary to adequately describe the geology of the area. Surface data, including data regarding known surface expressions, such as surface faults, gas seeps, lineations, etc., should be accounted for in the subsurface interpretations. A surface structure map should be prepared, incorporating all of the subsurface data as well as known surface features.

(4) A minimum of two structural cross-sections, utilizing available oil field and/or water well electric log data, shall be made perpendicular to each other, crossing at the proposed surface unit location. These cross-sections should define geologic units, indicating especially Holocene sediments and Underground Sources of Drinking Water (USDWs), as well as lithology. The cross-sections should be constructed from the surface, down through the shallowest major structure or the base of the Holocene, whichever is deeper. These cross-sections need to be on a scale necessary to depict the local geology (3000' radius from the site location minimum). If needed to adequately describe the local geology, then a larger radius or deeper area of review may be necessary.

(5) A minimum of two structural subsurface maps need to be prepared. One map should be made on the shallowest mappable subsurface marker, the other on a deeper horizon that shows the underlying major structure. Additional maps may be necessary.

(6) Field surveillance will be necessary to check the area of the facility for surface features, such as lineations, and to investigate potential surface faults as indicated by, but not limited to, aerial photos, topographic maps, and seismic and subsurface structural maps.

(7) The above requirements do not limit the use of any additional information, such as seismic data, isopach maps, or potentiometric maps, that may help in defining the geology of the area of review.

(8) If faulting exists within 3000 feet of the surface unit, it must be demonstrated that the fault has not had displacement within Holocene time. If such a fault does exist, it cannot pass within 200 feet of the surface unit.

(9) If a fault that has been active within the Holocene is located within 3000 feet of the surface unit, it must be demonstrated that, a.) the fault is not transmissive, i.e., it will not provide for groundwater movement that would result in endangerment to human health or the environment, and b.) there is no actual and/ or potential problem of subsidence, which could endanger the stability of the surface unit.

b. A discussion of the extent of land surface subsidence in the vicinity of the facility including total recorded subsidence and past and projected rates of subsidence. For facilities located at low elevations along the coast which have experienced appreciable rates of subsidence, the potential for future submerge

   c. A discussion of the degree to which the facility is subject to erosion. The potential for erosion due to surface water processes such as overland flow, channeling, gullying, and fluvial processes such as meandering streams and undercut banks should be evaluated. If the facility is located in a low-lying coastal area, historical rates of shoreline erosion should also be provided.

   d. Complete Table VI.A.1. - Major Geologic Formations

2. **Applicable to Land Based Units Only.** Regional Physiography and Topography (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan)

   a. Distance and direction to nearest surface water body

   b. Slope of land surface

   c. Direction of slope

   d. Maximum elevation of facility

   e. Minimum elevation of facility

3. **Applicable to Land Based Units Only.** Regional Geology (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan)

   Provide a description of the regional geology of the area. This section should include:

   a. A geologic map of the region with text describing the stratigraphic and lithologic properties of the map units. An appropriate section of a published map series such as the Geologic Atlas of Texas prepared by the Bureau of Economic Geology is acceptable.

   b. A description of the generalized stratigraphic column in the facility area from the base of the lowermost aquifer capable of providing usable groundwater to the land surface. At least the uppermost 1,000 feet of section below the facility should be described. The geologic age, lithology, variation in lithology, thickness, depth, geometry, hydraulic conductivity, and depositional history of each geologic unit should be described based upon available geologic information. Regional stratigraphic cross sections should be provided, where available.

4. Subsurface Soils Investigation Report **(Applicable t requiring contingent closure and post-closure).**

This section should contain the results of an investigation of subsurface conditions for each land based unit and/or unit which requires contingent closure and post-closure care. If several units are in close proximity, a single investigation for the area will suffice. This report should include:

a. The logs of borings performed at the waste management area. All borings must be conducted in accordance with established field exploration methods. Investigation procedures should be discussed in the report. A sufficient number of borings should be performed to establish subsurface stratigraphy and to identify and allow assessment of potential pathways for pollution migration. Borings must be sufficiently deep to allow identification of the uppermost aquifer and underlying hydraulically interconnected aquifers. Borings should penetrate through the uppermost aquifer and all deeper hydraulically interconnected aquifers, deep enough to identify the aquiclude at the lower boundary. Borings should be completed to a depth at least 30 feet below the deepest excavation planned at the waste management area.

b. A text which describes the investigator's interpretations of the subsurface stratigraphy based upon the field investigation. If appropriate, soils may be assigned to generalized strata to aid in the discussion.

c. A text which describes the investigator's interpretations of the subsurface stratigraphy based upon the field investigation. If appropriate, soils may be assigned to generalized strata to aid in the discussion.

d. Complete Table VI.A.4. - Waste Management Area Subsurface Conditions and provide in the report data which describes the geotechnical properties of the subsurface soil materials. All laboratory and field tests must be performed in accordance with recognized procedures. A brief discussion of test procedures should be included. All major strata encountered during the field investigation phase should be characterized with regard to: Unified Soil Classification, moisture content, percent less than number 200 sieve, Atterberg limits (liquid limit, plastic limit, and plasticity index), and coefficient of permeability. Field permeability tests should be used to determine the coefficient of permeability of sand or silt units and should also be used to supplement laboratory tests for more clay-rich soils. In addition, particle size distribution and relative density based upon penetration resistance should be determined for coarse-grained soils. For fine-grained soils the following parameters should also be determined: cohesive shear strength based upon either penetrometer or unconfined compression tests, dry unit weight, and degree of saturation(s). For the major soil strata encountered, the maximum, minimum, and average for each of these variables should be compiled.

e. For land treatment units, provide a description of the surficial soils at the site which includes:

(1) The name and description of the soil series at the site;
(2) Important physical properties of the series such as depth, permeability, available water capacity, soil pH, and erosion factors;
(3) Engineering properties and classifications such as USDA texture, Unified Soil Classification, size gradation, and Atterberg limits (liquid limit, plastic limit, and plasticity index); and
(4) The cation exchange capacity (CEC) of the soil(s) expressed in units of meq/100g.

Much of this information may be obtained by consulting the county soil survey published by the United States Department of Agriculture, Soil Conservation Service. If available, a copy of an aerial photograph showing soil series units on the land treatment area should be provided.

If an aerial photograph is not available, include a soil series map as an attachment t

B. Facility Groundwater

If past monitoring has shown the presence of hazardous constituents in the groundwater, the owner or operator must submit a Compliance Plan Application with this application. The Compliance Plan Application and instructions can be found in Section XI of this application form.

1. Regional Aquifers

Provide a description of the regional aquifers in the vicinity of the facility based upon available geologic references. The section should provide:

a. Aquifer names and their association with geologic units described in Section VI.A.3.b.;

b. A description of the constituent materials of the aquifer(s);

c. A description of the water-bearing and transmitting properties of the aquifer(s);

d. Whether the aquifers are under water table or artesian conditions;

e. Whether the aquifers are hydraulically connected;

f. A regional water table contour map or potentio
aquifer, if available, from published references;

g. An estimate of the rate of groundwater flow in units of ft/yr;

h. Values for total dissolved solids content of groundwater from t

i. Identification of areas of recharge to the aquifers; and

Note: An application for a new hazardous waste surface impoundment, waste pile, land treatment unit, or landfill, which is to be located in the apparent recharge zone of a major or minor aquifer, as designated by the Texas Water Development Board, must include a hydrogeologic report documenting the potential effects, if any, on the regional aquifer in the event of a release from the waste containment system. See the publication entitled Water for Texas, Today and Tomorrow (1990) or subsequent revision (Available at http://www.twdb.texas.gov/waterplanning/swp/1990/index.asp) for more

j. The present use of groundwater withdrawn from aquifers in the vicinity of

The preparer should update Section III.C.1.e. of the Part A permit application to ensure that all water wells within 1 mile of the property boundaries of the facility have been located. The aquifer(s) yielding water should be identified for each well.

2. Provide groundwater conditions for each land based unit or unit which requires post closure care which includes all the information specified in 30 TAC 335.156-335.167. This discussion should also include:

   a. Records of water level measurements in borings. The boring logs prepared in response to Section VI.A.4.a. should be annotated to note the level at which groundwater is first encountered and the level of groundwater after equilibration. Normally a 24-hour period is adequate for equilibration of groundwater but an extended period may be required for saturated clay deposits. This information should also be presented on the cross-sections required in Section VI.A.4.b. and recorded and retained in the facility groundwater monitoring record.

   b. Records of historical maximum and minimum static water level measurements in monitor wells. Historic water level measurements made during any previous groundwater monitoring should be presented in a table for each well.

   c. Upper and lower limits of the uppermost aquifer and deeper aquifers which are hydraulically interconnected to it beneath the facility boundary. In most cases this identification would include surface contour maps of the top and bottom surfaces. Indicate the typical depth at which groundwater is first

   d. A site specific water table contour map or potentiometric surface map for the uppermost aquifer, and the basis for such identification (the information obtained from hydrogeologic investigations of the facility area). The predicted groundwater flow direction and rate should be indicated.

   e. A discussion of the variation of hydraulic gradient across the site, including vertical gradient. Calculations for the maximum, minimum, and average groundwater flow velocities for each aquifer identified should also be provided, including pump test data where appropriate.

   f. An analysis of the most likely pathway(s) for pollutant migration in the event that the primary barrier liner system is penetrated.

3. Description of the Detection Monitoring Program

It is important to note that even if the proposed program may use the same well system as the present program, the sampling parameters may be different.

a. Include in the design report a description of the proposed detection monitoring program. This description should contain all requirements of 30 TAC 335.163-335.164.

b. Provide a justification for the selected suite of waste specific parameters specified in Table VI.B.3.c. - Groundwater Sample Analysis based on toxicity, mobility, persistence, and concentrations in light and dense non-aqueous phase components of the waste.

c. (Sampling and Analysis Plan) Describe the proposed sampling and analysis methods, as well as statistical comparison procedures to be utilized in evaluating groundwater monitoring data. Note: Methods listed for use in groundwater programs may provide flexibility allowing for updates of the base method. For methods other than the standard acceptable methods, applicant must provide a demonstration that the proposed methods are appropriate for groundwater analysis per 30 TAC 335.163(5).

d. Specify the statistical method and process for determining whether constituent concentrations in groundwater are above background, in accordance with 30 TAC 335.163. Refer to the EPA guidance document entitled Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities - Unified Guidance (March 2009) (document # EPA 530-F-09-020) for recommended methods.

All data submitted to the TCEQ shall be in a manner consistent with the latest version of the "*Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation Recovery Act and Underground Injection Control*
be found on the agency's website.

Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity. The method used to obtain a representative sample of the material to be analyzed shall be the appropriate method from *Ground Water, Volume II: Methodology*, (document # EPA/625/6-90/016b) or an equivalent method approved by the Executive Director of the TCEQ. Laboratory methods shall be those specified in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846*, 1987, as revised; *Standard Methods for the Examination of Water and Wastewater, Fifteenth Edition*
RCRA Ground-Water Monitoring: Draft Technical Guidance, 1992, *OSWER Directive 9950.1*, or an equivalent method approved in writing prior to use by the Executive Director. [30 TAC Section 305.125(11)(A)]

e. For inclusion into a permit, complete Table VI.B.3.b. - Unit Groundwater Detection Monitoring System to specify the proposed well system for each unit or waste management area which requires groundwater monitoring.

f. For inclusion into a permit, complete Table VI.B.3.c to specify:

(1) the suite of waste specific parameters (indicator parameters, waste constituents, or reaction products) which will be analyzed at each sampling event for each well or group of wells. These parameters must provide a reliable indication of the presence of hazardous constituents in the groundwater;

(2) the sampling frequencies and calendar intervals (e.g., monthly; quarterly within the second 30 days of each quarter; semiannually within the first 30 days of the 2nd and 4th

(3) the analytical method and the laboratory predicted detection limit and predicted Practical Quantification Limit (PQL) of the sample preparation and analysis methods for the selected parameters. This detection limit will represent the capability of the sampling and analysis to reliably and accurately determine the presence of the selected parameters in the sample; and

(4) the concentration limit which will be the basis for determining whether a release has occurred from the waste management unit/ area. Concentration limits shall be based on background values for the waste management unit/area, or PQL values developed through laboratory data obtained using practices consistent with the latest version of the TCEQ QAPP. If background values are lower than PQLs, the applicant may choose respective PQLs as concentration limits for hazardous constituents.

g. Submit drawings depicting the monitoring well design, current and proposed.

h. Submit at least one map of the entire facility and additional maps or drawings if necessary on one or more 8.5" x 11" sheets of sufficient scale to show the following in adequate detail:
(1) Monitoring well locations, current and proposed;
(2) Soil-pore liquid and core sampling points, curren
(3) Waste management unit(s)/area;
(4) Property boundary;
(5) Point of compliance;
(6) Direction of groundwater flow; and
(7) Extent of any known plume of contamination

i. For the description of site-specific groundwater for inclusion in permit summary documents, please complete the following:

Table VI.A.2. Description of Uppermost Aquifer

C. Exemption from Groundwater Monitoring for an Entire Facility

In accordance with 30 TAC 335.156(b)(4), a waste management facility may be exempt from groundwater monitoring if the owner or operator can demonstrate that there is no potential for migration of liquid from any regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and post-closure care period. This demonstration must be submitted with the permit application, and must be certified by a qualified geologist or geotechnical engineer.

This exemption does not apply to Unsaturated Zone Monitoring. Owners and operators of Land Treatment Units must monitor the unsaturated zone under all circumstances.

The following areas should be addressed in the demonstration, and any predictions must be made on assumptions that maximize the rate of liquid migration:

1. Thickness of soil between the base of the unit and saturated zone;
2. Thickness of saturated zone;
3. Head pressure of the fluids;
4. Properties of the saturated and unsaturated zone (including permeability, effective porosity, and homogeneity), and
5. Total life of facility

The criteria used for the evaluation of this demonstration are more stringent than those used for evaluations of demonstrations submitted prior to permitting. Thus it is necessary for an owner or operator to submit another demonstration even if one was submitted and approved previously.

This type of exemption differs from the exemptions described in Sections V.D. (Surface Impoundments), V.E. (Waste Piles), and V.G. (Landfills). An owner or operator may pursue a facility-wide exemption as well as an exemption for a particular unit, if the owner or operator wishes.

D. Unsaturated Zone Monitoring -RESERVED

TABLE VI.A.1 – MAJOR GEOLOGIC FORMATIONS

Permit No. 50361

Permittee: TDCJ Ellis Unit

Table VI.A.1. - Major Geologic Formations

Names Of Major Geologic Formation(s) Beneath The Facility	Lithology Of The Major Geologic Formation	Formation Thickness (Feet)	Depth To Top Of Formation	
			Feet/MSL(1)	Feet/BGS(2)
Alluvium	Clay, silt, sand, organic matter	0 to 40	--	--
Deweyville	Sand, silt and clay, some gravel	0 to 750	--	--
Beaumont	Mostly clay, silt and sand	+/- 100	--	--
Catahoula	Mudstone and sand	250 to 300	--	--
Jackson Group (Undifferentiated)	Quartz sand, sandy shale, shale tuffaceous, lignitic, argillaceous, glauconitic	--	--	--
Yegua	Sand and shale, lignitic	--	--	--

(1) MSL: Mean Sea Level

MLGL: Mean Low-tide Gulf Level

(2) BGS: Below Grade Surface

TABLE VI.A.4 – WASTE MANAGEMENT AREA SUBSURFACE CONDITIONS

Table VI.A.4. - Waste Management Area Subsurface Conditions

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit	Plasticity Index	Percent Passing #200 Sieve	Permeability	Percent Porosity
1	2-4	Tan & brown silty fine sand	SM	Nonplastic	42.3	1.79x10^{-8}		
	4.5-6	Tan & gray sandy clay	CL	37	15	22	57.7	--
	13.5-15	Tan silty fine sand	SM	Nonplastic	11.6	--		
	23-25	Dark gray clay	CH	72	33	39	97.4	--
2	2-4	Brown & tan sandy clay	CL	40	13	27	74.2	--
	4-6	Tan & gray very sandy clay	CL	34	12	22	54.1	--
	10-11.5	Tan fine sand	SP	Nonplastic	5.3	--		
	18.5-20	Gray fine sand	SP	Nonplastic	5.9	--		
	23.5-25	Gray fine to medium sand	SP	Nonplastic	5.4	--		
	33-35	Dark gray clay	CH	72	30	42	99.0	--
3	2-4	Reddish tan & tan sandy clay	CL	34	14	20	63.1	--
	4-6	Tan & gray clayey sand	SC	27	13	14	46.8	8.84x10^{-7}
	8.5-10	Tan silty fine sand	SM	Nonplastic	11.5	--		
	18.5-20	Tan & gray fine to medium sand	SP	Nonplastic	3.7	--		
	28-30	Dark gray clay	CH	68	26	42	98.5	6.47x10^{-8}

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit	Plasticity Index	Percent Passing #200 Sieve	Permeability	Percent Porosity
4	2-4	Brown sandy clay	CL	32	18	14	61.7	--
	6-8	Tan & gray sandy clay	CL	30	14	16	61.1	--
	13.5-15	Tan fine sand	SP	Nonplastic	6.4	--		
	23.5-25	Tan fine to medium sand	SP	Nonplastic	1.6	--		
	38-40	Dark gray clayey sand	SC	47	22	25	41.9	--
5	4-6	Gray & tan sandy clay	CL	40	14	26	58.2	1.16x10^{-8}
	8.5-10	Gray & tan fine sand	SP	Nonplastic	7.9	--		
	18.5-20	Gray fine to coarse sand	SP	Nonplastic	8.0	--		
	23.5-25	Dark gray clay	CH	82	32	50	97.5	--
6	0-2	Brown & gray sandy clay	CL	23	16	7	59.8	--
	4-6	Brown & gray sandy clay	CL	35	13	22	60.8	1.71x10^{-8}
	8-10	Gray, tan & brown clay	CH	56	15	41	78.4	--
	15-16.5	Tan & gray fine to medium sand	SP	Nonplastic	4.9	--		
	18.5-20	Tan & gray fine to medium sand	SP	Nonplastic	5.5	--		
	25-27	Dark gray clay	CH	88	33	55	99.5	--

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit	Plasticity Index	Percent Passing #200 Sieve	Permeability	Percent Porosity
7	2-4	Dark brown sandy clay	CL	37	13	24	50.4	--
	4-6	Gray & tan sandy clay	CL	40	14	26	56.4	--
	6-8	Gray fine sand	SP	Nonplastic	7.5	--		
	9.5-10	Reddish-tan fine sand	SP	Nonplastic	--	--		
	13.5-15	Gray fine to coarse sand	SP	Nonplastic	--	--		
	18.5-20	Dark gray clay	CH	84	34	50	94.8	--
	23-25	Dark gray clay	--	--	--	--	--	8.70×10^{-9}
8	4-6	Tan & gray very sandy clay	CL	25	14	11	55.6	--
	6-8	Tan & brown silty fine sand	SM	Nonplastic	22.1	--		
	13.5-15	Tan & brown fine sand	SP	Nonplastic	5.7	--		
	23.5-25	Tan & gray sand	SP	Nonplastic	3.3	--		
	28.5-30	Tan medium to coarse sand	SP	Nonplastic	3.5	--		
	38.5-40	Dark gray clay	CH	79	25	54	98	--

1R	0 - 5	Dark grayish brown, orange staining	CL					
	5 - 9	Brownish yellow silty sand, orange staining	SM					
	9 - 10	Gray clay, orange staining	CL	Medium plasticity				
	10 - 12.5	Brown silty sand, orange staining	SM					
	12.5 - 27.5	Light brownish gray sand	SP					
	27.5 - 30	Dark greening gray clay	CH	High plasticity				
2R	0 - 2.5	Brown silty sand	SM					
	2.5 – 5	Dark grayish brown sandy clay, orange staining	CL					
	5 - 10	Light gray silty sand, orange staining	SM					
	10 - 30	Light brownish gray to yellowish brown sand	SP					
	30 – 32	Dark greening gray clay	CH	High plasticity				

3R	0-2.5	Brown silty sand	SM					
	2.5 – 7.5	Dark gray sandy clay, orange staining	CL					
	7.5 - 18	Light brownish gray sand with some yellow staining	SP					
	18 – 20	Dark greenish gray clay	CH	High plasticity				
4R	0 – 2.5	Brown silty sand	SM					
	2.5 - 4	Dark Gray Sandy Clay	CL	Low plasticity				
	4 – 5.5	Fine brown silty sand	SM					
	5.5 – 75	Dark gray sandy clay, orange staining	CL					
	7.5 – 22.5	Light brown gray sand – some reddish brown and yellowish brown	SP					
	22.5 – 25	Dark greenish gray clay	CH	High plasticity				

5R	0 – 1	Brown silty sand	SM					
	1 - 5	Dark gray clay with orange staining	CL					
	5 – 12.5	Light gray silty sand, orange staining	SM					
	12.5 – 32.5	Light brownish gray sand with orange staining	SP					
	32.5 - 33	Greenish gray clay	CH	High plasticity				
6R	0 – 2.5	Brown silty sand	SM					
	2.5 – 7.5	Gray sandy clay, orange staining	CL	Medium plasticity				
	7.5 - 10	Gray clayey sand	SC					
	10 – 22.5	Light brown sand with yellow staining	SP					
	22.5 – 25	Dark greenish gray clay	CH	High plasticity				

Maximum depth: ____ feet below grade
____ feet above MSL

cm/sec - Centimeter per second.

TABLE V1.B.3.b – UNIT GROUNDWATER DETECTION MONITORING SYSTEMS

Table VI.B.3.b. - Unit Groundwater Detection Monitoring Systems

Hazardous Waste Unit Landfill				
Well Number(s)	P-1R	P-2R	P-3R	P-4R
Hydrogeologic Unit Monitored	Uppermost Alluvium	Uppermost Alluvium	Uppermost Alluvium	Uppermost Alluvium
Type (e.g., point of compliance, background, observation, etc.)	Background	Point of Compliance	Point of Compliance	Point of Compliance
Up or Down Gradient	Upgradient	Downgradient	Downgradient	Downgradient
Casing Diameter and Material	2” PVC	2” PVC	2” PVC	2” PVC
Screen Diameter and Material	2” PVC	2” PVC	2” PVC	2” PVC
Screen Slot Size (in.)	0.01	0.01	0.01	0.01
Top of Casing Elevation (Ft, MLGL or MSL)	143.50	142.57	138.09	138.16
Grade or Surface Elevation (Ft, MLGL or MSL)	140.80	139.93	135.67	135.29
Well Depth (Ft, Below Grade Surface *[BGS]*)	26.79	30.28	18.02	22.58
Well Depth (Ft, Below Top of Casing *[BTOC]*)	29.49	32.92	20.44	25.45
Screen Interval				
From(Ft, BGS)	12	15	8	12.8
To(Ft, BGS)	27	30	18	22.8
Screen Interval				
From(Ft, bTOC)	15	18	11	15.8
To(Ft, bTOC)	30	33	21	25.8
Facility Coordinates (e.g., lat./long. or company coordinates) (ex. 99° 99' 99"}	30° 53’ 59.1850” N 095° 25’ 43.5214” W	30° 53’ 57.9542” N 095° 25’ 37.9051” W	30° 53’ 59.1700” N 095° 25’ 35.6765” W	30° 54’ 03.6840” N 095° 25’ 40.1438” W

Hazardous Waste Unit Landfill

Permit No. 50361

Permittee: TDCJ Ellis Unit

Well Number(s)	P-5R	P-6R		
Hydrogeologic Unit Monitored	Uppermost Alluvium	Uppermost Alluvium		
Type (e.g., point of compliance, background, observation, etc.)	Background	Point of Compliance		
Up or Down Gradient	Upgradient	Downgradient		
Casing Diameter and Material	144.37	137.63		
Screen Diameter and Material	141.78	135.02		
Screen Slot Size (in.)	0.01	0.01		
Top of Casing Elevation (Ft, MLGL or MSL)	144.37	137.63		
Grade or Surface Elevation (Ft, MLGL or MSL)	141.78	135.02		
Well Depth (Ft, Below Grade Surface *[BGS]*)	32.87	20.65		
Well Depth (Ft, Below Top of Casing *[BTOC]*)	35.46	23.26		
Screen Interval				
From(Ft, BGS)	17	10		
To(Ft, BGS)	32	20		
Screen Interval				
From(Ft, bTOC)	20	13		
To(Ft, bTOC)	35	23		
Facility Coordinates (e.g., lat./long. or company coordinates) (ex. 99° 99' 99"}	30° 54’ 02.9434” N 095° 25’ 43.8452” W	30° 54’ 00.8610” N 095° 25’ 37.2400” W		

[1] From Tables in Section V.

MSL: Mean Sea Level; *MLGL*: Mean Low-tide Gulf Level; *BGS*: Below Grade Surface; *BTOC*: Below Top of Casing

TABLE VI.B.3.c – GROUNDWATER DETECTION MONITORING PARAMETERS

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area Hazardous Waste Landfill

Well No(s): P-1R

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Arsenic	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Barium	Annual	SW6020A	0.01 mg/L	1 mg/L
Cadmium	Annual	SW6020A	0.001 mg/L	0.01 mg/L
Chromium	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Lead	Annual	SW6020A	0.001 mg/L	0.05 mg/L
Manganese	Annual	SW6020A	0.003 mg/L	0.544 mg/L
Selenium	Annual	SW6020A	0.006 mg/L	0.01 mg/L
Silver	Annual	SW6020A	0.002 mg/L	0.05 mg/L
Mercury	Annual	SW7470A	0.002 mg/L	0.002 mg/L
Chloride	Annual	E300.0	1.0 mgL	90.8 mg/L
Chemical Oxygen Demand	Annual	Hach 8000 (if analyzer is used) or EPA 410.4	15 mg/L	15 mg/L
Total Organic Halides	Annual	SM5310C	0.3 mg/L	0.0411 mg/L

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Total Organic Carbon	Annual	SW9020B	0.02 mg/L	2.61 mg/L

1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

Notes:

-The concentration limit is used to determine whether a release has occurred from the waste management unit/area.
-Concentration Limits will be equivalent to statistically derived upper prediction limits (UPLs) calculated using approved background data obtained for each monitoring well. In accordance with 30 TAC §335.163(9)(F), with TCEQ's approval, concentration limits will be updated, no less than every two years, with groundwater monitoring results demonstrated to be representative of background groundwater quality to correct for seasonal and spatial variability as well as temporal correlation in the data.
-Chloride, pH, conductivity, and COD are expected to be present at the landfill. A detected concentration is not evidence of a release.
-Hach 8000 is equivalent to EPA 410.4 but is specific to the analyzer. If a Hach analyzer is not used for COD, use EPA 410.4

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area Hazardous Waste Landfill

Well No(s): P-2R

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Arsenic	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Barium	Annual	SW6020A	0.01 mg/L	1 mg/L
Cadmium	Annual	SW6020A	0.001 mg/L	0.01 mg/L
Chromium	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Lead	Annual	SW6020A	0.001 mg/L	0.05 mg/L
Manganese	Annual	SW6020A	0.003 mg/L	1.36 mg/L
Selenium	Annual	SW6020A	0.006 mg/L	0.01 mg/L
Silver	Annual	SW6020A	0.002 mg/L	0.05 mg/L
Mercury	Annual	SW7470A	0.002 mg/L	0.002 mg/L
Chloride	Annual	E300.0	1.0 mgL	94.3 mg/L
Chemical Oxygen Demand	Annual	Hach 8000 (if analyzer is used) or EPA 410.4	15 mg/L	15 mg/L
Total Organic Halides	Annual	SM5310C	0.3 mg/L	0.0371 mg/L

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Total Organic Carbon	Annual	SW9020B	0.02 mg/L	3.56 mg/L

1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

Notes:

-The concentration limit is used to determine whether a release has occurred from the waste management unit/area.
-Concentration Limits will be equivalent to statistically derived upper prediction limits (UPLs) calculated using approved background data obtained for each monitoring well. In accordance with 30 TAC §335.163(9)(F), with TCEQ's approval, concentration limits will be updated, no less than every two years, with groundwater monitoring results demonstrated to be representative of background groundwater quality to correct for seasonal and spatial variability as well as temporal correlation in the data.
-Chloride, pH, conductivity, and COD are expected to be present at the landfill. A detected concentration is not evidence of a release.
-Hach 8000 is equivalent to EPA 410.4 but is specific to the analyzer. If a Hach analyzer is not used for COD, use EPA 410.4

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area Hazardous Waste Landfill

Well No(s): P-3R

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Arsenic	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Barium	Annual	SW6020A	0.01 mg/L	1 mg/L
Cadmium	Annual	SW6020A	0.001 mg/L	0.01 mg/L
Chromium	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Lead	Annual	SW6020A	0.001 mg/L	0.05 mg/L
Manganese	Annual	SW6020A	0.003 mg/L	4.02 mg/L
Selenium	Annual	SW6020A	0.006 mg/L	0.01 mg/L
Silver	Annual	SW6020A	0.002 mg/L	0.05 mg/L
Mercury	Annual	SW7470A	0.002 mg/L	0.002 mg/L
Chloride	Annual	E300.0	1.0 mgL	367 mg/L
Chemical Oxygen Demand	Annual	Hach 8000 (if analyzer is used) or EPA 410.4	15 mg/L	15 mg/L
Total Organic Halides	Annual	SM5310C	0.3 mg/L	0.0872 mg/L

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Total Organic Carbon	Annual	SW9020B	0.02 mg/L	3.98 mg/L

1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

Notes:

-The concentration limit is used to determine whether a release has occurred from the waste management unit/area.
-Concentration Limits will be equivalent to statistically derived upper prediction limits (UPLs) calculated using approved background data obtained for each monitoring well. In accordance with 30 TAC §335.163(9)(F), with TCEQ's approval, concentration limits will be updated, no less than every two years, with groundwater monitoring results demonstrated to be representative of background groundwater quality to correct for seasonal and spatial variability as well as temporal correlation in the data.
-Chloride, pH, conductivity, and COD are expected to be present at the landfill. A detected concentration is not evidence of a release.
-Hach 8000 is equivalent to EPA 410.4 but is specific to the analyzer. If a Hach analyzer is not used for COD, use EPA 410.4

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area Hazardous Waste Landfill

Well No(s): P-4R

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Arsenic	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Barium	Annual	SW6020A	0.01 mg/L	1 mg/L
Cadmium	Annual	SW6020A	0.001 mg/L	0.01 mg/L
Chromium	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Lead	Annual	SW6020A	0.001 mg/L	0.05 mg/L
Manganese	Annual	SW6020A	0.003 mg/L	1.22 mg/L
Selenium	Annual	SW6020A	0.006 mg/L	0.01 mg/L
Silver	Annual	SW6020A	0.002 mg/L	0.05 mg/L
Mercury	Annual	SW7470A	0.002 mg/L	0.002 mg/L
Chloride	Annual	E300.0	1.0 mgL	111 mg/L
Chemical Oxygen Demand	Annual	Hach 8000 (if analyzer is used) or EPA 410.4	15 mg/L	15 mg/L
Total Organic Halides	Annual	SM5310C	0.3 mg/L	0.0266 mg/L

Permit No. 50361

Permittee: TDCJ Ellis Unit

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Total Organic Carbon	Annual	SW9020B	0.02 mg/L	3.62 mg/L

1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

Notes:

-The concentration limit is used to determine whether a release has occurred from the waste management unit/area.

-Concentration Limits will be equivalent to statistically derived upper prediction limits (UPLs) calculated using approved background data obtained for each monitoring well. In accordance with 30 TAC §335.163(9)(F), with TCEQ's approval, concentration limits will be updated, no less than every two years, with groundwater monitoring results demonstrated to be representative of background groundwater quality to correct for seasonal and spatial variability as well as temporal correlation in the data.

-Chloride, pH, conductivity, and COD are expected to be present at the landfill. A detected concentration is not evidence of a release.

-Hach 8000 is equivalent to EPA 410.4 but is specific to the analyzer. If a Hach analyzer is not used for COD, use EPA 410.4

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area Hazardous Waste Landfill

Well No(s): P-5R

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Arsenic	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Barium	Annual	SW6020A	0.01 mg/L	1 mg/L
Cadmium	Annual	SW6020A	0.001 mg/L	0.01 mg/L
Chromium	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Lead	Annual	SW6020A	0.001 mg/L	0.05 mg/L
Manganese	Annual	SW6020A	0.003 mg/L	0.780 mg/L
Selenium	Annual	SW6020A	0.006 mg/L	0.01 mg/L
Silver	Annual	SW6020A	0.002 mg/L	0.05 mg/L
Mercury	Annual	SW7470A	0.002 mg/L	0.002 mg/L
Chloride	Annual	E300.0	1.0 mgL	103 mg/L
Chemical Oxygen Demand	Annual	Hach 8000 (if analyzer is used) or EPA 410.4	15 mg/L	15 mg/L
Total Organic Halides	Annual	SM5310C	0.3 mg/L	0.0372 mg/L

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Total Organic Carbon	Annual	SW9020B	0.02 mg/L	2.17 mg/L

1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

Notes:

-The concentration limit is used to determine whether a release has occurred from the waste management unit/area.
-Concentration Limits will be equivalent to statistically derived upper prediction limits (UPLs) calculated using approved background data obtained for each monitoring well. In accordance with 30 TAC §335.163(9)(F), with TCEQ's approval, concentration limits will be updated, no less than every two years, with groundwater monitoring results demonstrated to be representative of background groundwater quality to correct for seasonal and spatial variability as well as temporal correlation in the data.
-Chloride, pH, conductivity, and COD are expected to be present at the landfill. A detected concentration is not evidence of a release.
-Hach 8000 is equivalent to EPA 410.4 but is specific to the analyzer. If a Hach analyzer is not used for COD, use EPA 410.4

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area Hazardous Waste Landfill

Well No(s): P-6R

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Arsenic	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Barium	Annual	SW6020A	0.01 mg/L	1 mg/L
Cadmium	Annual	SW6020A	0.001 mg/L	0.01 mg/L
Chromium	Annual	SW6020A	0.006 mg/L	0.05 mg/L
Lead	Annual	SW6020A	0.001 mg/L	0.05 mg/L
Manganese	Annual	SW6020A	0.003 mg/L	1.61 mg/L
Selenium	Annual	SW6020A	0.006 mg/L	0.01 mg/L
Silver	Annual	SW6020A	0.002 mg/L	0.05 mg/L
Mercury	Annual	SW7470A	0.002 mg/L	0.002 mg/L
Chloride	Annual	E300.0	1.0 mgL	88.1 mg/L
Chemical Oxygen Demand	Annual	Hach 8000 (if analyzer is used) or EPA 410.4	15 mg/L	16 mg/L
Total Organic Halides	Annual	SM5310C	0.3 mg/L	0.0564 mg/L

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]
Total Organic Carbon	Annual	SW9020B	0.02 mg/L	4.03 mg/L

1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

Notes:

-The concentration limit is used to determine whether a release has occurred from the waste management unit/area.
-Concentration Limits will be equivalent to statistically derived upper prediction limits (UPLs) calculated using approved background data obtained for each monitoring well. In accordance with 30 TAC §335.163(9)(F), with TCEQ's approval, concentration limits will be updated, no less than every two years, with groundwater monitoring results demonstrated to be representative of background groundwater quality to correct for seasonal and spatial variability as well as temporal correlation in the data.
-Chloride, pH, conductivity, and COD are expected to be present at the landfill. A detected concentration is not evidence of a release.
-Hach 8000 is equivalent to EPA 410.4 but is specific to the analyzer. If a Hach analyzer is not used for COD, use EPA 410.4

APPENDIX VI.A

GEOLOGY REPORT

ENVIRONEERING, INC.

SECTION VI.A.

GEOLOGY REPORT

Texas Department of Criminal Justice (TDCJ)
Ellis Unit Hazardous Waste Landfill
Huntsville, Texas

May 11, 2001

Prepared by:
ENVIRONEERING, INC.
16350 Park Ten Place, Ste. 140
Houston, Texas 77084

SECTION VI.A

GEOLOGY REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas
TABLE OF CONTENTS

SECTION VI.A

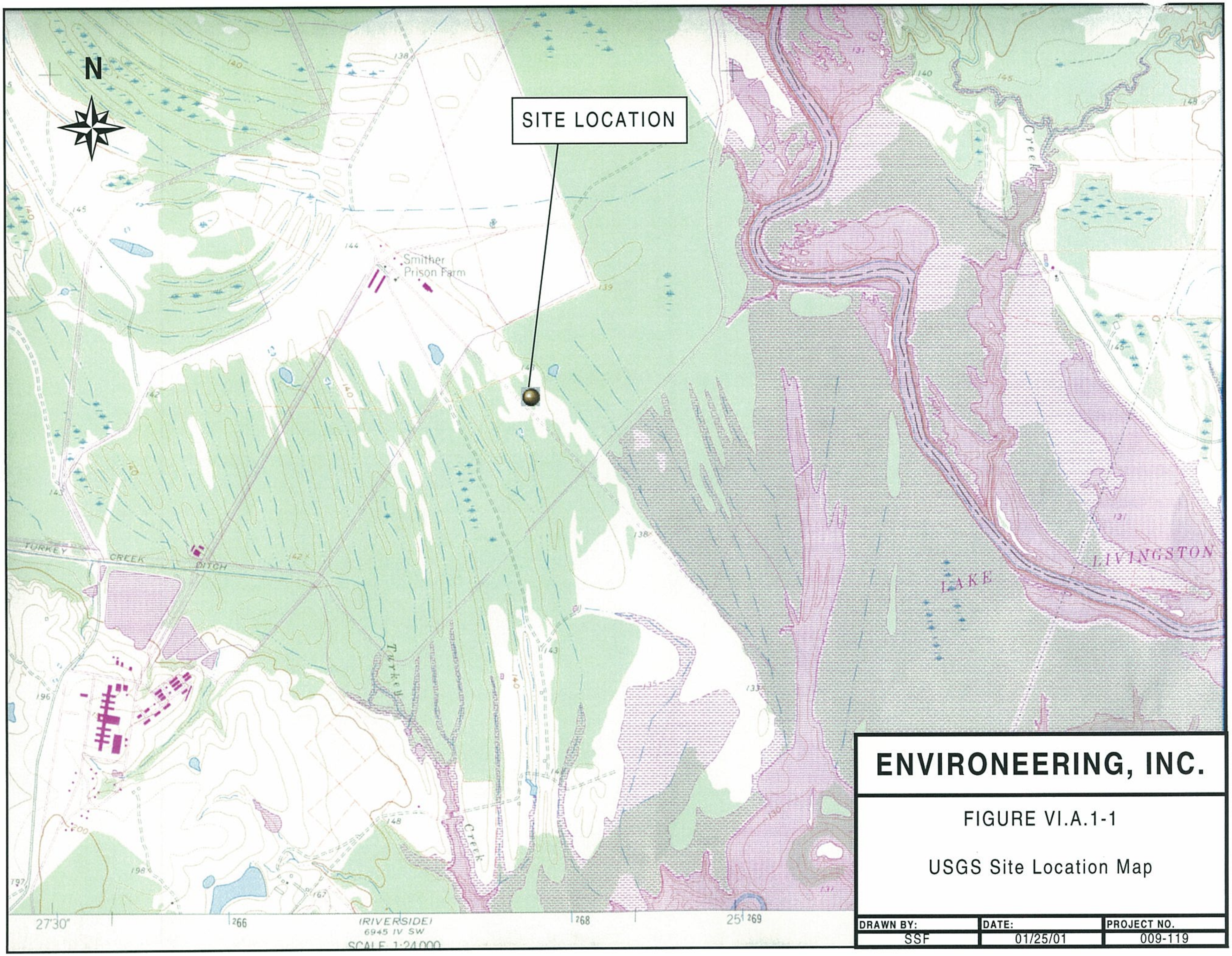
GEOLOGY REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

VI.A.1 - INTRODUCTION

VI.A.1.1 General Project Background

The Texas Department of Criminal Justice - Institutional Division (TDCJ-ID) owns and operates the Ellis correctional unit located near the city of Huntsville, Texas in Walker County, Texas (see Figure VI.A.1-1). The Ellis unit contains an inactive landfill for which a Part A permit application was submitted to the Texas Department of Health (TDH) for permitting as a non hazardous waste disposal facility for municipal type wastes. Before completion of Part B of the permit application and final permitting of the landfill by the TDH, the landfill ceased receipt of all wastes. However, a subsequent inspection of the landfill by the then Texas Water Commission (TWC) resulted in the TWC preparing a "Notice of Executive Director's Preliminary Report and Petition for a Texas Water Commission Order Assessing Administrative Penalties and Requiring Certain Actions of Texas Department of Corrections - Ellis Unit I", dated May 25, 1989. As a result, the TDCJ-ID signed an Agreed Order to prepare and submit a Part B permit application for the inactive landfill as if it were a known hazardous waste landfill. Integral to the preparation of this permit is the preparation of a Geology Report.

The following subsections of this Geology Report are organized in accordance with the TNRCC Part B permit application instructions (TNRCC 0376 (Rev. 05/20/99)). Section headings and subheadings follow recommended guidelines. Information obtained from previous geological reports has been incorporated into this report.



ENVIRONEERING, INC.

FIGURE VI.A.1-1

USGS Site Location Map

DRAWN BY:	DATE:	PROJECT NO.
SSF	01/25/01	009-119

SECTION VI.A

GEOLOGY REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

VI.A.2 - ACTIVE GEOLOGICAL PROCESSES

VI.A.2.1 Faulting

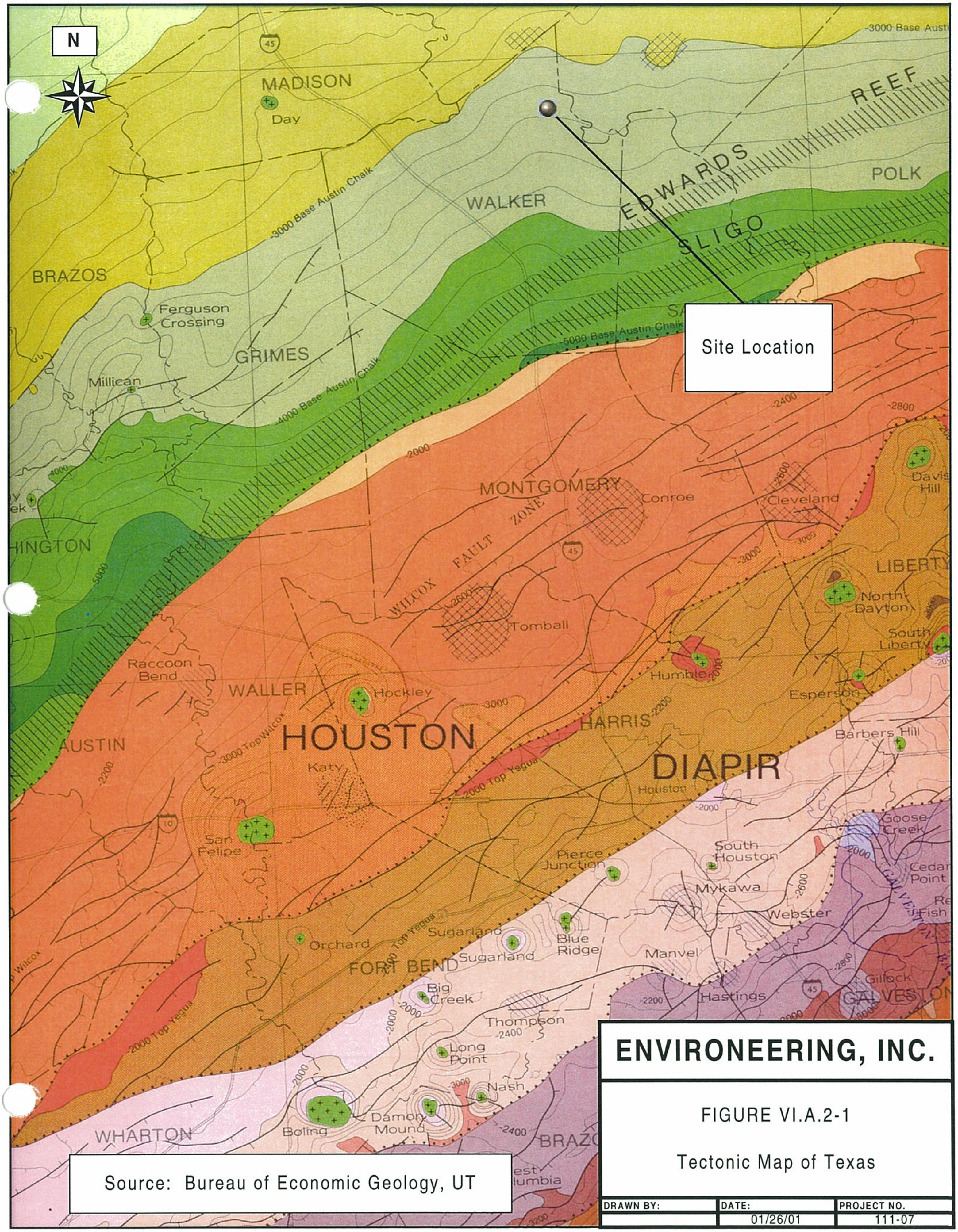
As shown on the Tectonic Map of Texas (Figure VI.A.2-1) and the two early tectonic element maps (Figures VI.A.2-2 and VI.A.2-3), there are no known faults within 3000 feet of the Ellis landfill. The closest fault is located greater than ten miles west of the site in Grimes County.

VI.A.2.2 Erosion

The site is within the Trinity River flood plain area approximately 10,000 feet northeast of the Ellis fenced compound. Surrounding land use is primarily for pasture and agricultural purposes. The Trinity River is located approximately 5,000 feet to the northeast of this site. The flood plain within which this facility is located has been protected from flooding by a levi which was constructed by the Texas Department of Criminal Justice (TDCJ). Thus, only natural storm water run off occurs from the landfill. The existing landfill cap is sloped less than five percent and substantial grassy vegetation has covered the surface of the landfill providing added protection against surface erosion.

VI.A.2.3 Other

ue to the facilities location, shoreline erosion and surface subsidence are not topics of concern for this site.



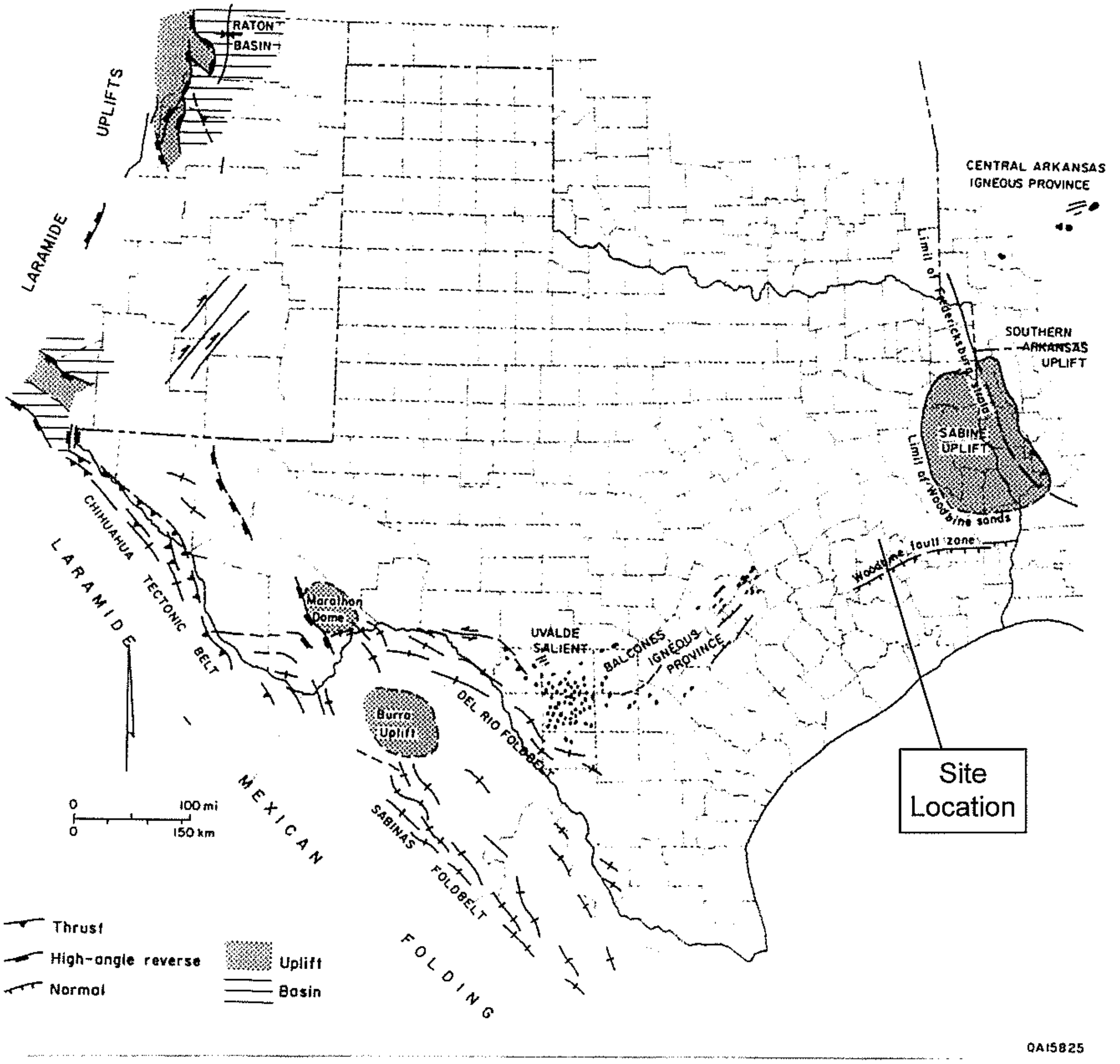
Source: Bureau of Economic Geology, UT

ENVIRONEERING, INC.

FIGURE VI.A.2-1

Tectonic Map of Texas

DRAWN BY:	DATE:	PROJECT NO.
	01/26/01	111-07

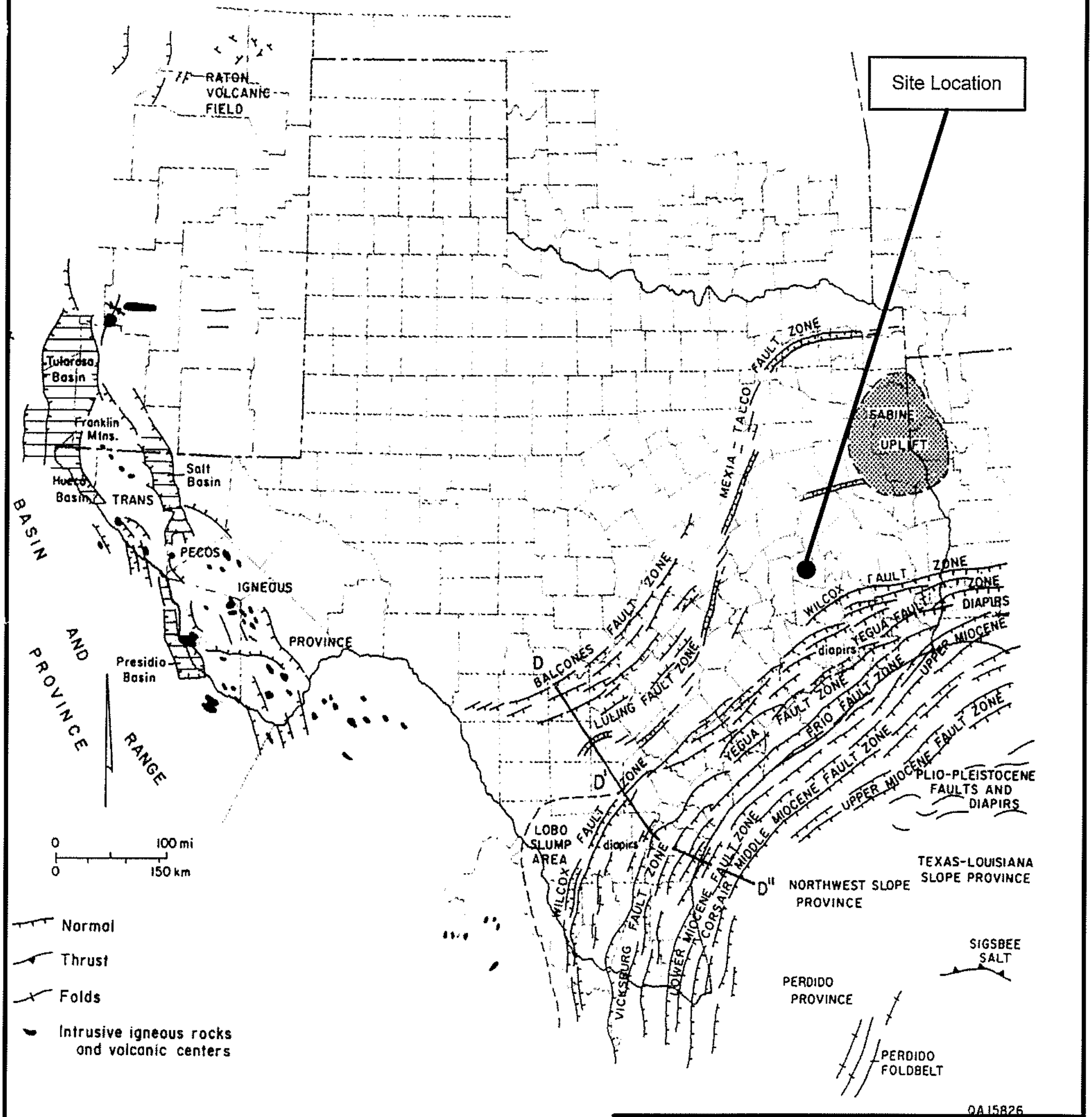


ENVIRONEERING, INC.

FIGURE VI.A.2-2

Midcretaceous to Eocene Tectonic Elements of Texas

DRAWN BY:
DATE: 01/22/01
PROJECT NO. 111-07



ENVIRONEERING, INC.

FIGURE VI.A.2-3

Cenozoic Tectonic Elements of Texas

DRAWN BY:	DATE: 02/05/01	PROJECT NO. 111-07

SECTION VI.A

GEOLOGY REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

VI.A.3- REGIONAL PHYSIOGRAPHY AND TOPOGRAPHY

The site on which the landfill is situated is relatively flat (0 – 5%) and slopes slightly to the northeast and southwest towards the Trinity River. The Trinity River is located approximately 5,000 feet to the northeast of the landfill. The difference in elevation within the perimeter of the site is three to four feet due to the presence of the existing landfill cap. As shown on the portion of the USGS map portion (Trinity West) in Figure VI.A.1-1, site elevations range from 138 feet to 139 feet above sea level.

A small shallow pond is the nearest surface water body and is located approximately 300 feet northeast of the landfill. Lake Livingston is the largest surface water body located near the site and its outer reaches are located approximately 1050 feet from the northeast corner of the landfill. An earthen levee protects the site from any flood waters from Lake Livingston and/or the Trinity River.

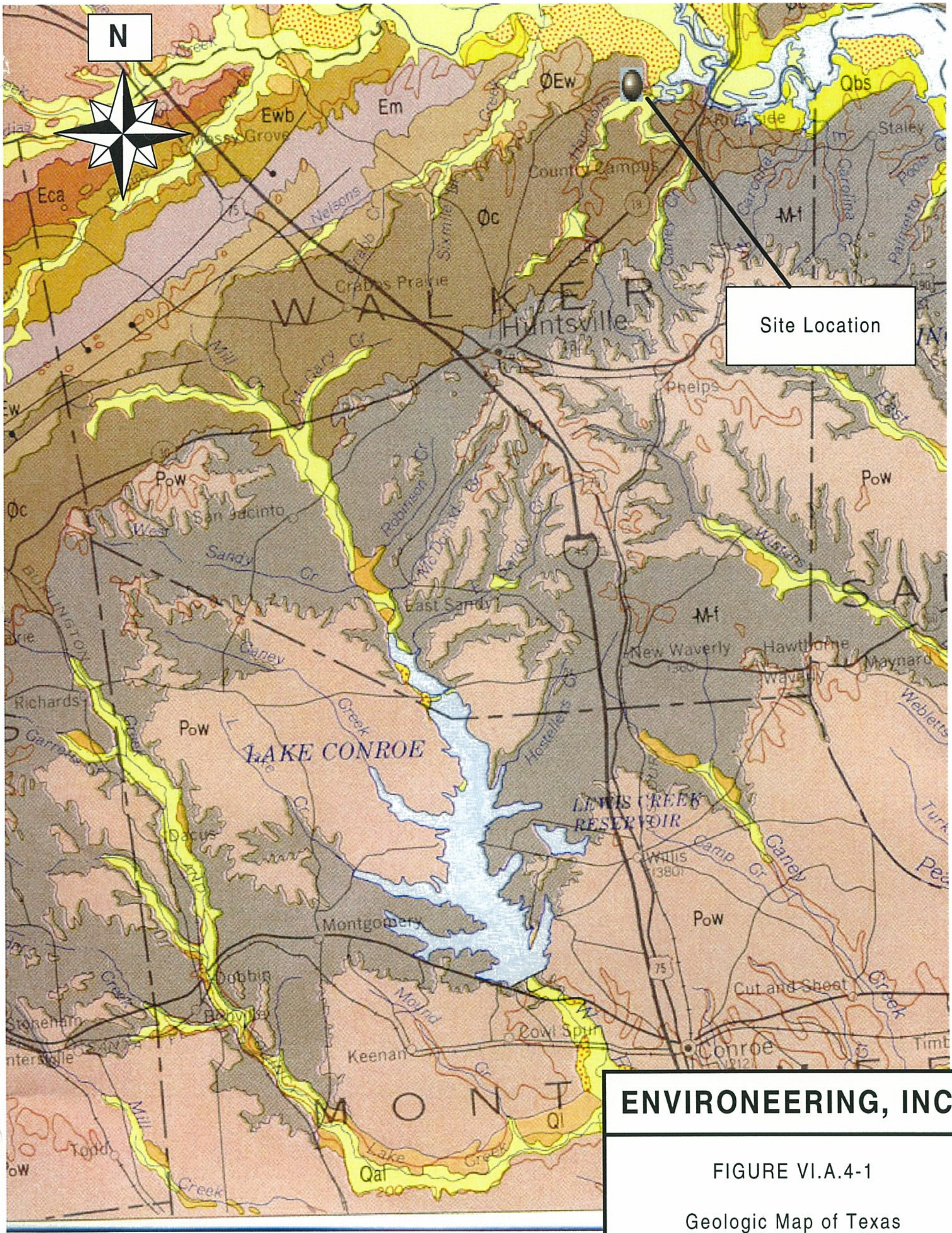
VI.A.4– REGIONAL GEOLOGY

Numerous geotechnical and subsurface investigations have been performed by others at this site. Regional geology was described by Southwestern Laboratories (SWL) in their report dated November 1990 (Attachment VI.A.A, Appendix A). According to SWL, the Ellis landfill site is located in the Trinity River Valley; a flat, stream-laid, sediment-filled valley lying within the Coastal Plain physiographic region of Texas. The valley is partly bounded along its north edge by an escarpment consisting of Quaternary and Tertiary age sediments at the base of which the river is currently flowing. The formations underlying the valley sediments are all sedimentary, dipping southeastward toward the gulf at low angles and cropping out as northeastward-striking bands across the county. Parts of the drainage basins of the Trinity River proximate to the study area flow parallel to the strike of these sedimentary rocks, particularly Bedias, South Bedias, and Nelson Creeks. The names, ages and descriptions of the formations occurring in the study area in stratigraphically descending order are as follows:

Age (System/Series)	Formation	Description (Thickness, ft.)
Quaternary/Recent	Alluvium	Clay, silt, sand, organic matter abundant locally (0-?)
Quaternary/Recent or Late (?) Pleistocene	Deweyville	Sand, silt, and clay, some gravel (0-750)
Quaternary/Pleistocene	Beaumont	Mostly clay, silt and sand (+/- 100)
Tertiary/Miocene	Catahoula	Mudstone and sand (250-300)
Tertiary/Eocene	Jackson Group* (undifferentiated)	Quartz sand, sandy shale, shale tuffaceous, lignitic, argillaceous, glauconitic
Tertiary/Eocene	Yegua	Sand and shale, lignitic

*includes Whitsett, Maning, Wellborn and Caddell Formations.
Source: Adapted from University of Texas (1968) and Winslow (1950)

A geologic map of the Trinity River Valley illustrates the surficial relationships between different stratigraphic units (Figure VI.A.4-1).



Source: Bureau of Economic Geology, UT
Soil at Site is Oc - Catahoula Formation

ENVIRONEERING, INC.

FIGURE VI.A.4-1

Geologic Map of Texas

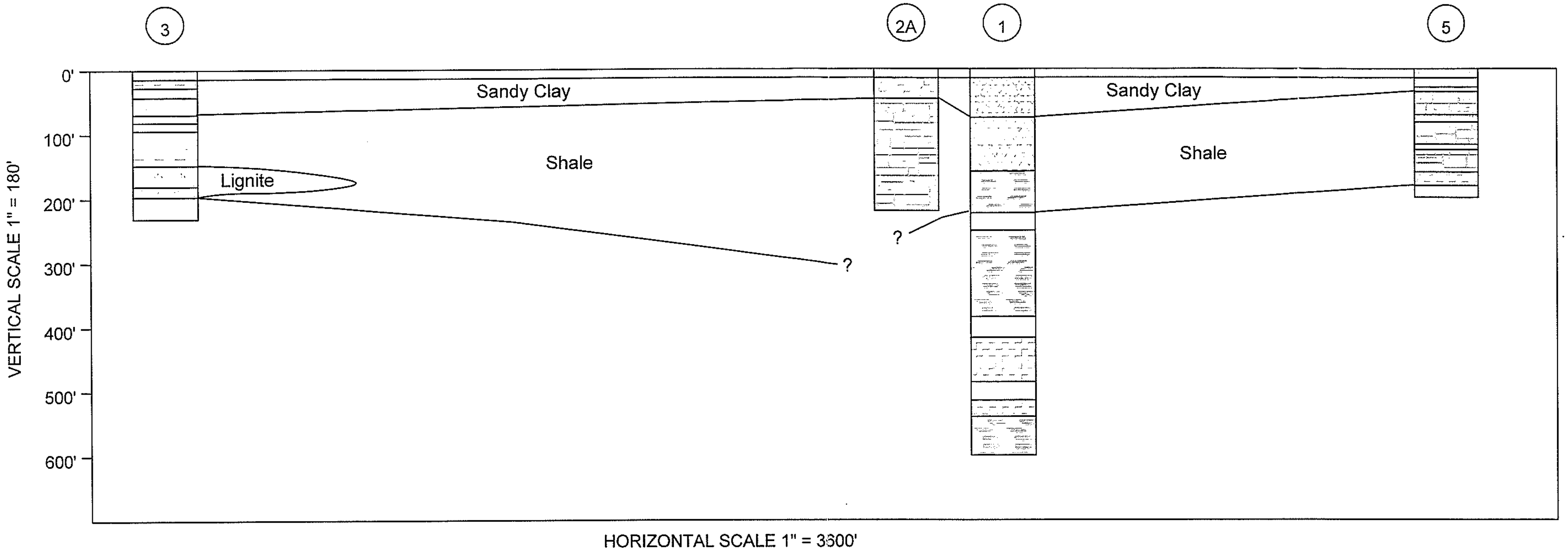
DRAWN BY:	DATE:	PROJECT NO.
	01/25/01	111-07

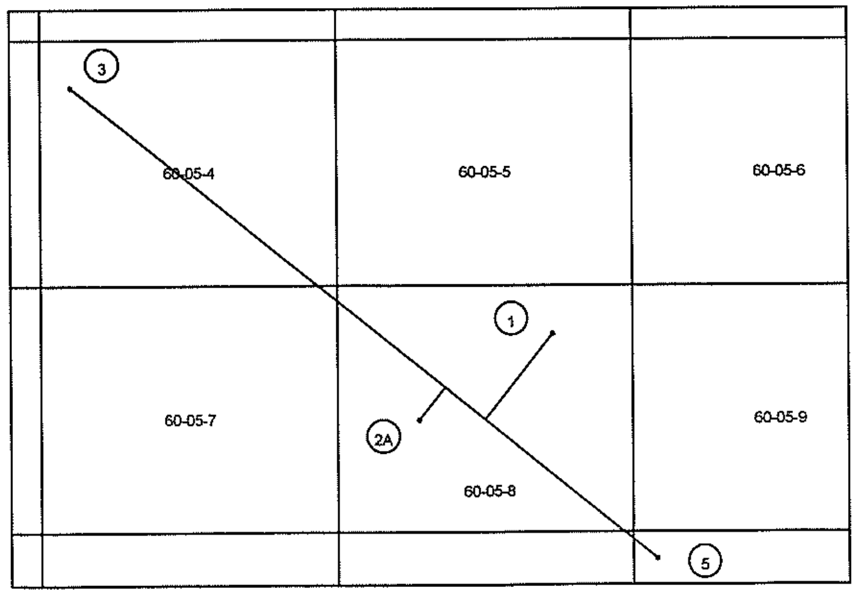
SECTION VI.A

GEOLOGY REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

The groundwater system beneath the Trinity River Valley has not been described well in the literature. According to Winslow (1950), the Quaternary sediments are not known to yield large supplies of water. The formation of the Catahoula and Jackson Group are considered to yield small to moderate supplies of potable water.

Regional stratigraphic cross-sections, prepared from existing water well data, are shown in Figures VI.A.4-2 and VI.A.4-3.





WELL LOCATION MAP

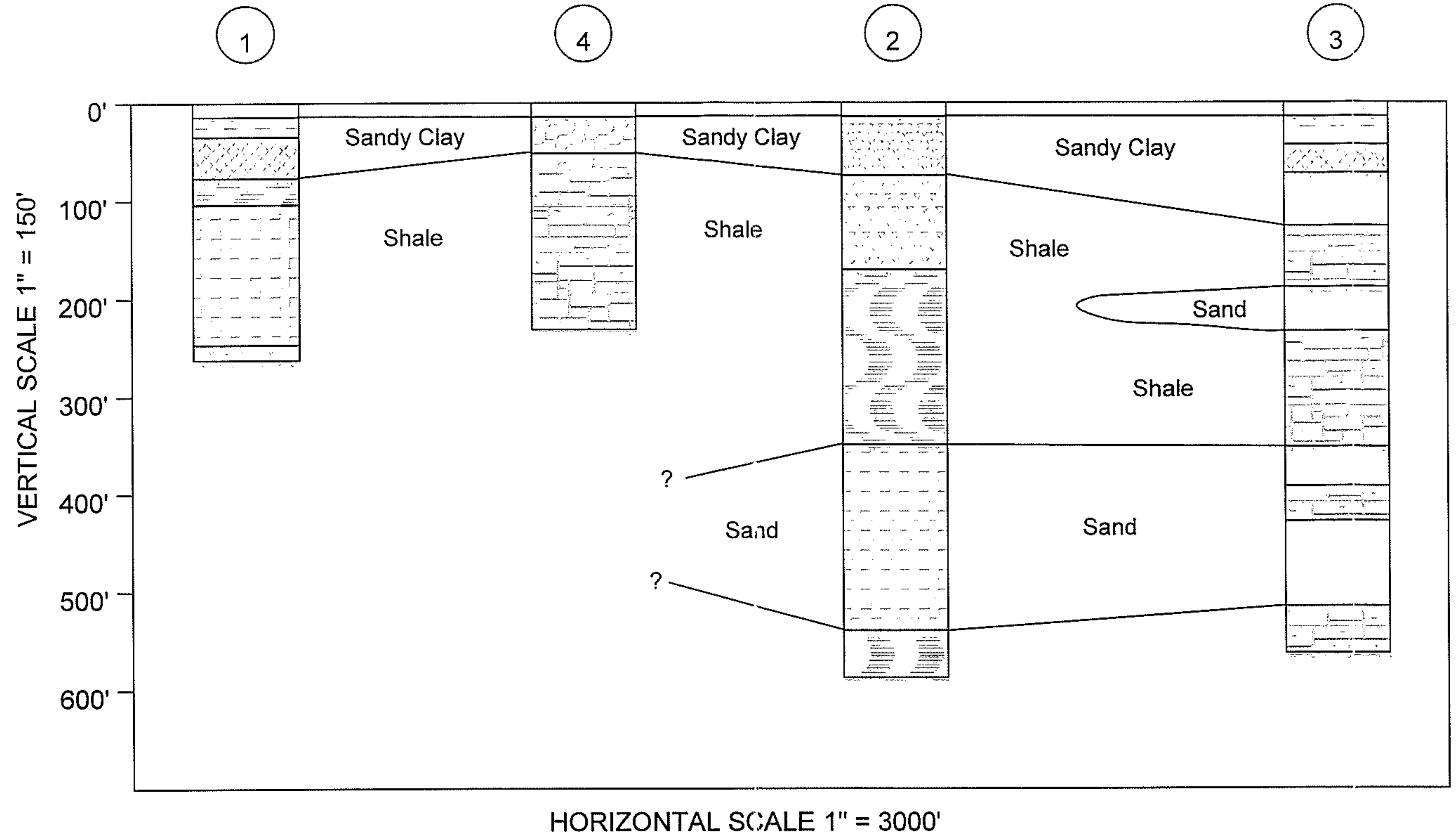
LEGEND

▭	CLAY
▭	SAND
▨	TOP SOIL
▨	SHALE
▨	ROCK
▨	LIGNITE
▨	HARD SHALE & SAND
▨	SAND & SHALE
▨	SHALE & SAND
▭	SANDY SHALE
▨	SANDSTONE
▨	SANDY CLAY

ENVIRONEERING, INC.

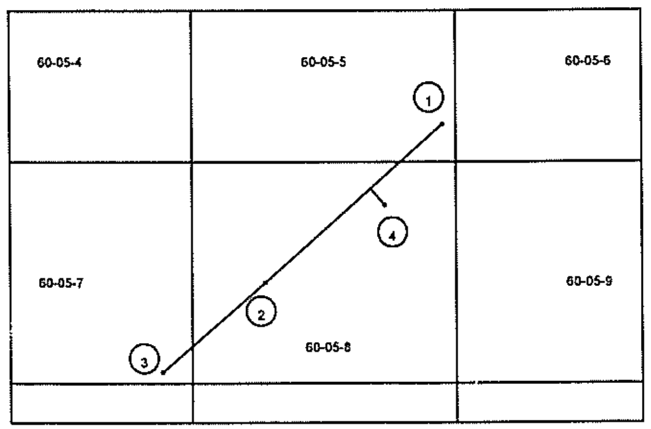
FIGURE VI.A.4-2
Stratigraphic Cross Section
Texas Department of Criminal Justice
Ellis I Hazardous Waste Landfill

DWG. BY AP	DATE 03/13/01	PROJ. NO.



LEGEND

CLAY
SAND
TOP SOIL
SHALE
ROCK
SANDY CLAY
HARD SHALE & SAND
SAND & SHALE
SHALE & SAND
SANDY SHALE
SAND W/GRAVEL
SHALE W/GRAVEL



WELL LOCATION MAP

ENVIRONEERING, INC.

FIGURE VI.A.4-3
Stratigraphic Cross Section
Texas Department of Criminal Justice
Ellis I Hazardous Waste Landfill

DWG. BY AP
DATE 03/13/01
PROJ. NO.

SECTION VI.A

GEOLOGY REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

VI.A.5– SUBSURFACE SOILS INVESTIGATION REPORT

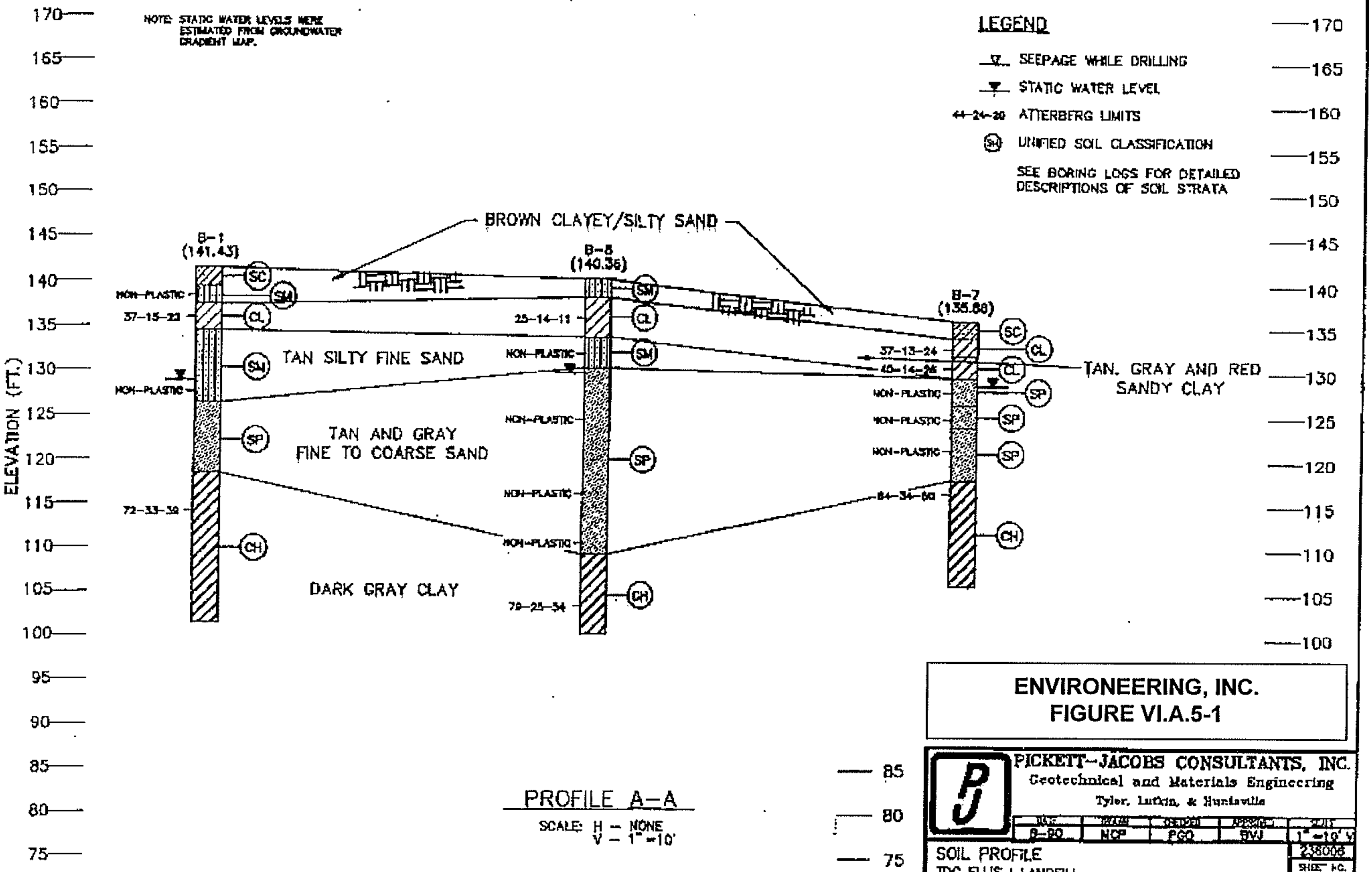
The "Report of Geotechnical Investigation and Preliminary Groundwater Quality Assessment Plan, Ellis Landfill, Texas Department of Criminal Justice-Institutional Division, Walker County, Texas", dated November 14, 1990, and prepared by Pickett-Jacobs Consultants, Inc. describes the site subsurface soils. Logs of borings performed at the waste management area, generalized soil strata descriptions and text discussing the geotechnical properties of the subsurface soil materials are included in this report shown in Attachment VI.A.A.

The shallow geology at the site is depicted in the cross section prepared by Pickett-Jacobs and shown as Figures VI.A.5-1 through VI.A.5-4. The shallow geology at the site are recent deposits that are a part of the Trinity River flood plain. The shallow sediment layers are relatively uniform. As shown in the cross sections, the uppermost aquifer is an upward fining sequence of sand with a silty fine sand that occurs at a depth of 6 to 8 feet deep grading into a fine to coarse sand 6 to 15 feet below grade. The thin layer of silty fine sand is absent in B-5 and B-7. Based on the static water levels shown on the cross sections, the uppermost aquifer is under water table conditions.

The uppermost aquifer is overlain by a surficial sandy clay that ranges in thickness from 6 to 8 feet. Underlying the uppermost aquifer is a clay that is at least 18 feet thick. Each of the borings shown on the cross sections terminate in this clay layer.

Table VI.A.4 was completed using data obtained from the above referenced report and is shown on the following pages.

NOTE: STATIC WATER LEVELS WERE ESTIMATED FROM GROUNDWATER GRADIENT MAP.



PROFILE A-A

SCALE: H – NONE
V – 1" =10'

ENVIRONEERING, INC.
FIGURE VI.A.5-1

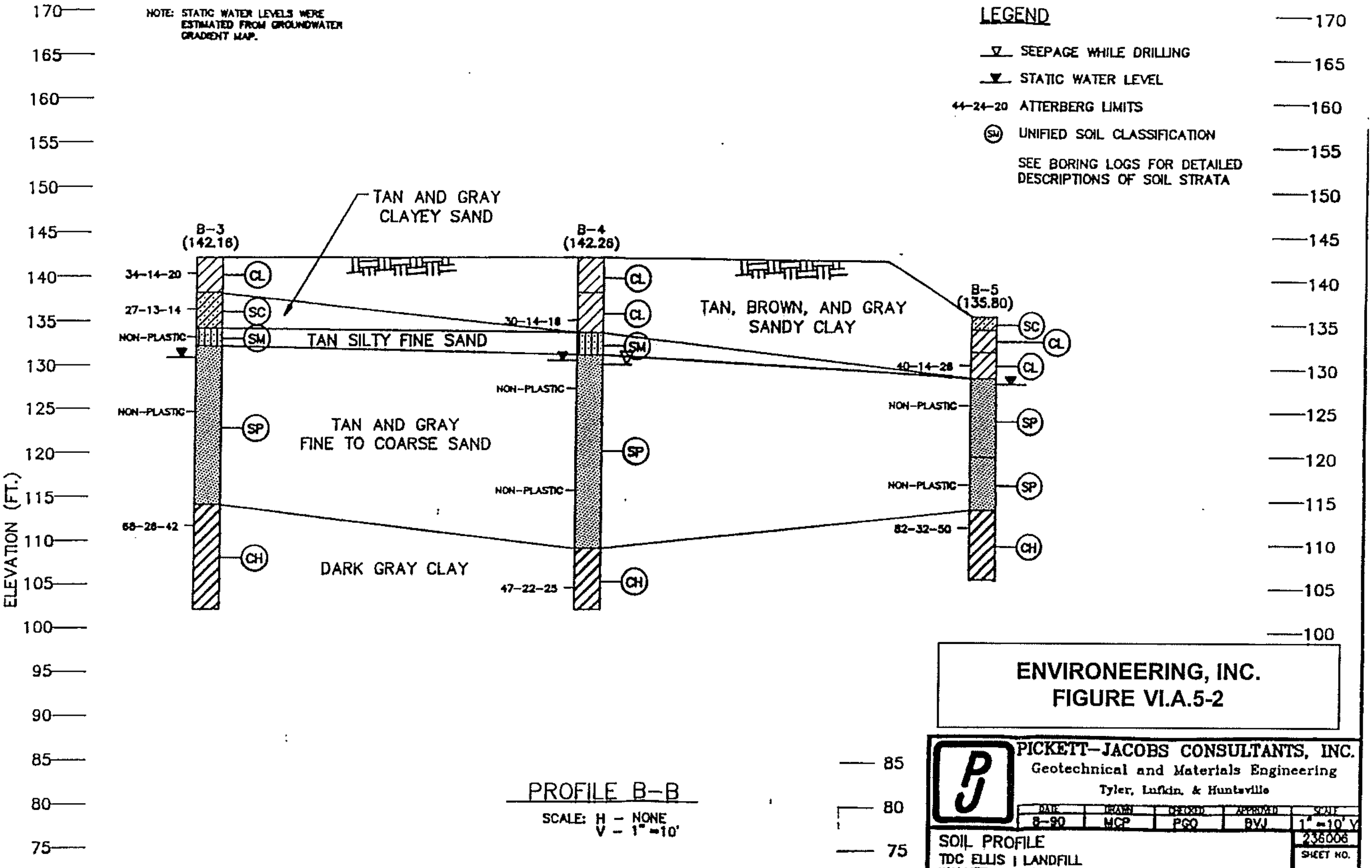
PICKETT-JACOBS CONSULTANTS, INC.
Geotechnical and Materials Engineering
Tyler, Lufkin, & Huntsville

8-90	NCP	PGO	SVJ	1" =10' V

SOIL PROFILE
TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

238006
SHEET NO.
1

NOTE: STATIC WATER LEVELS WERE ESTIMATED FROM GROUNDWATER GRADIENT MAP.



LEGEND

- ▽ SEEPAGE WHILE DRILLING
- ▼ STATIC WATER LEVEL
- 44-24-20 ATTERBERG LIMITS
- (SM) UNIFIED SOIL CLASSIFICATION

SEE BORING LOGS FOR DETAILED DESCRIPTIONS OF SOIL STRATA

PROFILE B-B

SCALE: H - NONE
V - 1" =10'

ENVIRONEERING, INC.
FIGURE VI.A.5-2

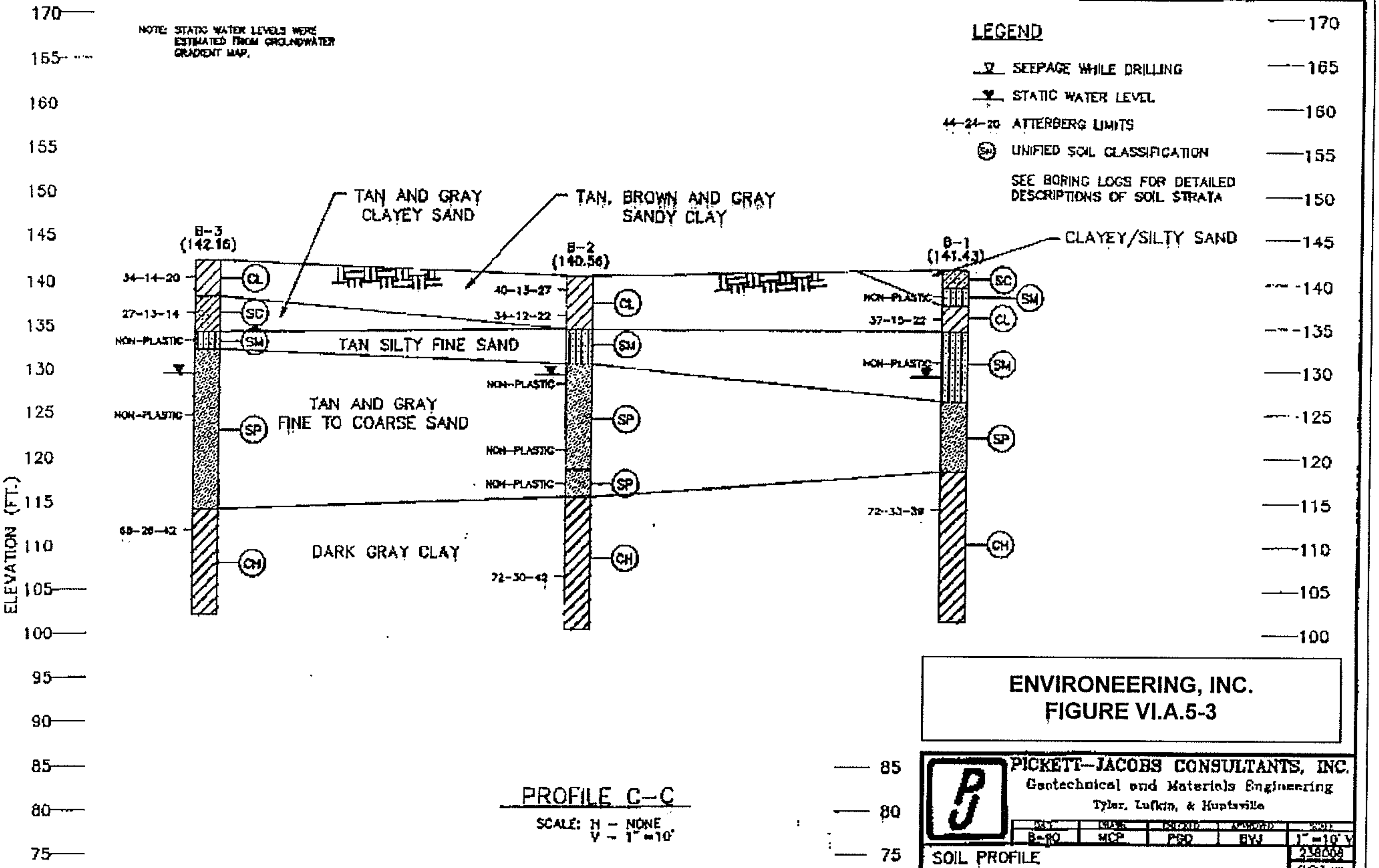
PICKETT-JACOBS CONSULTANTS, INC.
Geotechnical and Materials Engineering
Tyler, Lufkin, & Huntsville

DATE	DRAWN	CHECKED	APPROVED	SCALE
8-90	MCP	PGO	BVJ	1"=10' V

236006

SOIL PROFILE
TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

SHEET NO.
2



PROFILE C–C

SCALE: H – NONE
V – 1" =10'

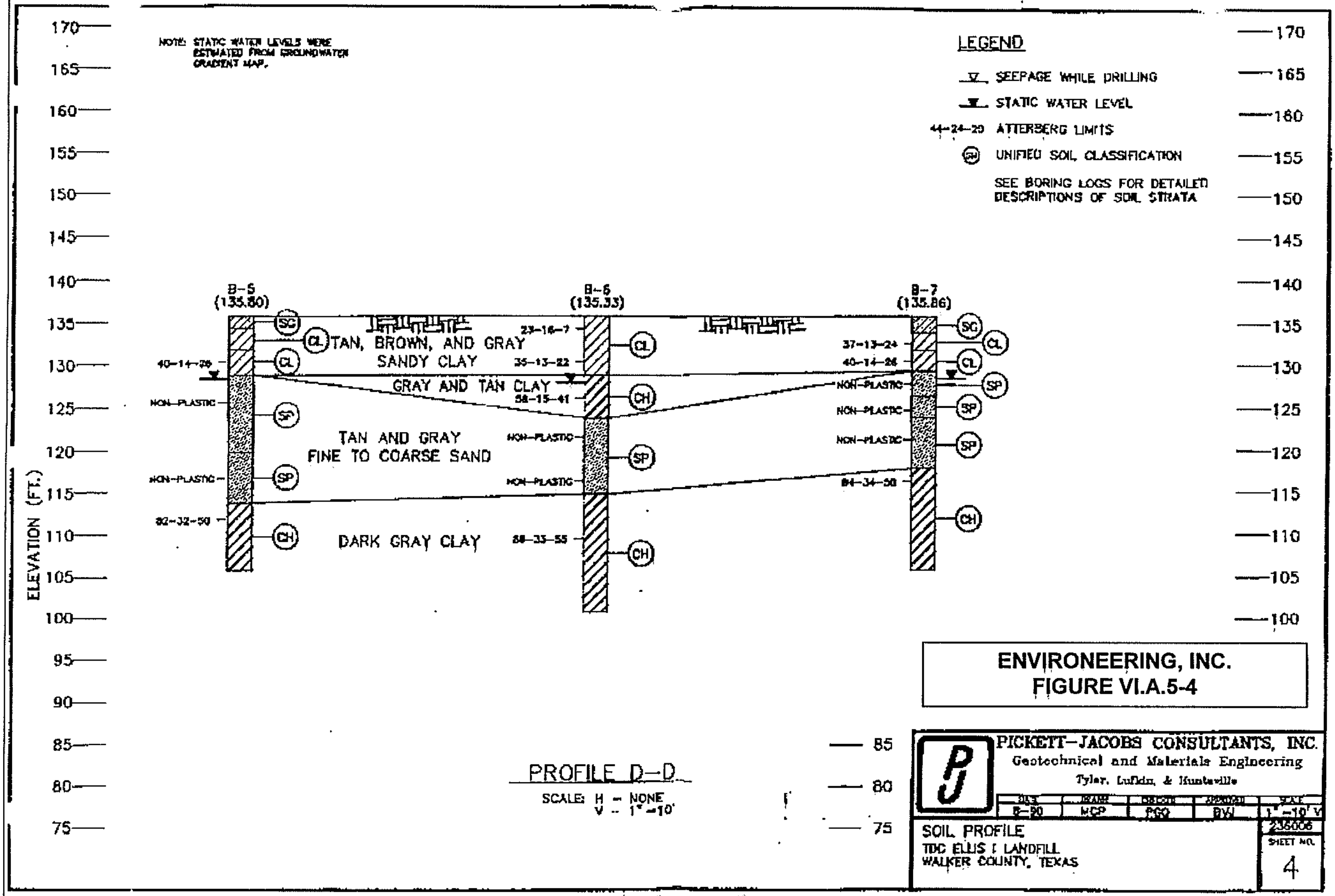
ENVIRONEERING, INC.
FIGURE VI.A.5-3

PICKETT–JACOBS CONSULTANTS, INC.
Geotechnical and Materials Engineering
Tyler, Lufkin, & Huntsville

8-90	MCP	PGD	BYJ	1" =10' V

SOIL PROFILE
TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

238009
SHEET NO.
3



NOTE: STATIC WATER LEVELS WERE ESTIMATED FROM GROUNDWATER GRADIENT MAP.

LEGEND

- ▽ SEEPAGE WHILE DRILLING
- ▼ STATIC WATER LEVEL
- 44-24-20 ATTERBERG LIMITS
- (SM) UNIFIED SOIL CLASSIFICATION

SEE BORING LOGS FOR DETAILED DESCRIPTIONS OF SOIL STRATA

PROFILE D-D

SCALE: H - NONE
V - 1"=10'

ENVIRONEERING, INC.
FIGURE VI.A.5-4

PICKETT-JACOBS CONSULTANTS, INC.
Geotechnical and Materials Engineering
Tyler, Lufkin, & Huntsville

DATE	DRAWN	CHECKED	APPROVED	SCALE
8-90	MCP	PGO	BW	1"=10' V

236006

SOIL PROFILE
TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

SHEET NO.
4

TABLE VI.A.4 Waste Management Area Subsurface Conditions

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit	Plasticity Index	Percent Passing #200 Sieve	Permeability	Percent Porosity
1	2-4	Tan & brown silty fine sand	SM	Nonplastic		42.3	1.79 x 10^{-8}	
	4 ½ -6	Tan & gray sandy clay	CL	37	22	57.7		
	13 ½ -15	Tan, silty fine sand	SM	Nonplastic		11.6		
	23-25	Dark gray clay	CH	72	39	97.4		
2	2-4	Brown & tan sandy clay	CL	40	27	74.2		
	4-6	Tan & gray very sandy clay	CL	34	22	54.1		
	10-11½	Tan fine sand	SP	Nonplastic		5.3		
	18 ½ -20	Gray fine sand	SP	Nonplastic		5.9		
	23 ½-25	Gray fine to medium sand	SP	Nonplastic		5.4		
	33-35	Dark gray clay	CH	72	42	99.0		
3	2-4	Reddish tan and tan sandy clay	CL	34	20	63.1		
	4-6	Tan & gray clayey sand	SC	27	14	46.8	8.84 x 10^{-7}	
	8 ½ -10	Tan silty fine sand	SM	Nonplastic		11.5		
	18 ½ -20	Tan and gray fine to medium sand	SP	Nonplastic		3.7		
	28-30	Dark gray clay	CH	68	42	98.5	6.47 x 10^{-8}	
4	2-4	Brown sandy clay	CL	32	14	61.7		
	6-8	Tan and gray sandy clay	CL	30	16	61.1		
	13 ½ -15	Tan fine sand		Nonplastic		6.4		
	23 ½ -25	Tan fine to medium sand		Nonplastic		1.6		
	38-40	Dark gray clayey sand		47	25	41.9		
5	4-6	Gray and tan sandy clay		40	26	58.2	1.16 x 10^{-8}	
5	8 ½ -10	Gray and tan fine sand		Nonplastic		7.9		
	18 ½ -20	Gray fine to coarse sand		Nonplastic		8.0		

TABLE VI.A.4 Waste Management Area Subsurface Conditions

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit	Plasticity Index	Percent Passing #200 Sieve	Permeability	Percent Porosity
	23 ½ -25	Dark gray clay		82	50	97.5		
6	0-2	Brown and gray sandy clay		23	7	59.8		
	4-6	Brown and gray sandy clay		35	22	60.8	1.71×10^{-8}	
	8-10	Gray, tan, and brown clay		56	41	78.4		
	15-16 ½	Tan and gray fine to medium sand		Nonplastic				
	18 ½ -20	Tan and gray fine to medium sand		Nonplastic				
	25-27	Dark gray clay		88	55	99.5		
7	2-4	Dark brown sandy clay		37	24	50.4		
	4-6	Gray and tan sandy clay		40	26	56.4		
	6-8	Gray fine sand		Nonplastic		7.5		
	9 ½ -10	Reddish-tan fine sand		Nonplastic				
	13 ½ -15	Gray fine to coarse sand		Nonplastic				
	18 ½ -20	Dark gray clay		84	50	94.8		
	23-25	Dark gray clay					8.7×10^{-9}	
8	4-6	Tan and gray very sandy clay		25	11	55.6		
	6-8	Tan and brown silty fine sand		Nonplastic		22.1		
	13 ½ -15	Tan and brown fine sand		Nonplastic		5.7		
	23 ½ -25	Tan and gray sand		Nonplastic		3.3		
	28 ½ -30	Tan medium to coarse sand		Nonplastic		3.5		
	38 ½ -40	Dark gray clay		79	54	98		

ATTACHMENT VI.A.A

PREVIOUS GEOTECHNICAL AND SUBSURFACE REPORTS

APPENDIX VI.B

GROUNDWATER REPORT

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

March 31, 2001

Prepared by:

ENVIRONEERING, INC.
16350 Park Ten Place Ste.140
Houston, Texas 77084

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

TABLE OF CONTENTS

ATTACHMENTS

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

VI.B - INTRODUCTION

The Texas Department of Criminal Justice - Institutional Division (TDCJ-ID) owns and operates the Ellis correctional unit located near the city of Huntsville, Texas in Walker County, Texas. The Ellis unit contains an inactive landfill for which a Part A permit application was submitted to the Texas Department of Health (TDH) for permitting as a non hazardous waste disposal facility for municipal type wastes. Before completion of Part B of the permit application and final permitting of the landfill by the TDH, the landfill ceased receipt of all wastes. However, a subsequent inspection of the landfill by the then Texas Water Commission (TWC) resulted in the TWC preparing a "Notice of Executive Director's Preliminary Report and Petition for a Texas Water Commission Order Assessing Administrative Penalties and Requiring Certain Actions of Texas Department of Corrections - Ellis Unit I", dated May 25, 1989. As a result, the TDCJ-ID signed an Agreed Order to prepare and submit a Part B permit application for the inactive landfill as if it were a known hazardous waste landfill. Integral to the preparation of this permit is the preparation of a Facility Ground Water Report.

The following subsections of this Facility Ground Water Report are organized in accordance with the TNRCC Part B permit application instructions (TNRCC 0376 (Rev. 05/20/99)). Section headings and subheadings follow recommended guidelines. Information obtained from previous ground water and subsurface investigation reports has been incorporated into this document.

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

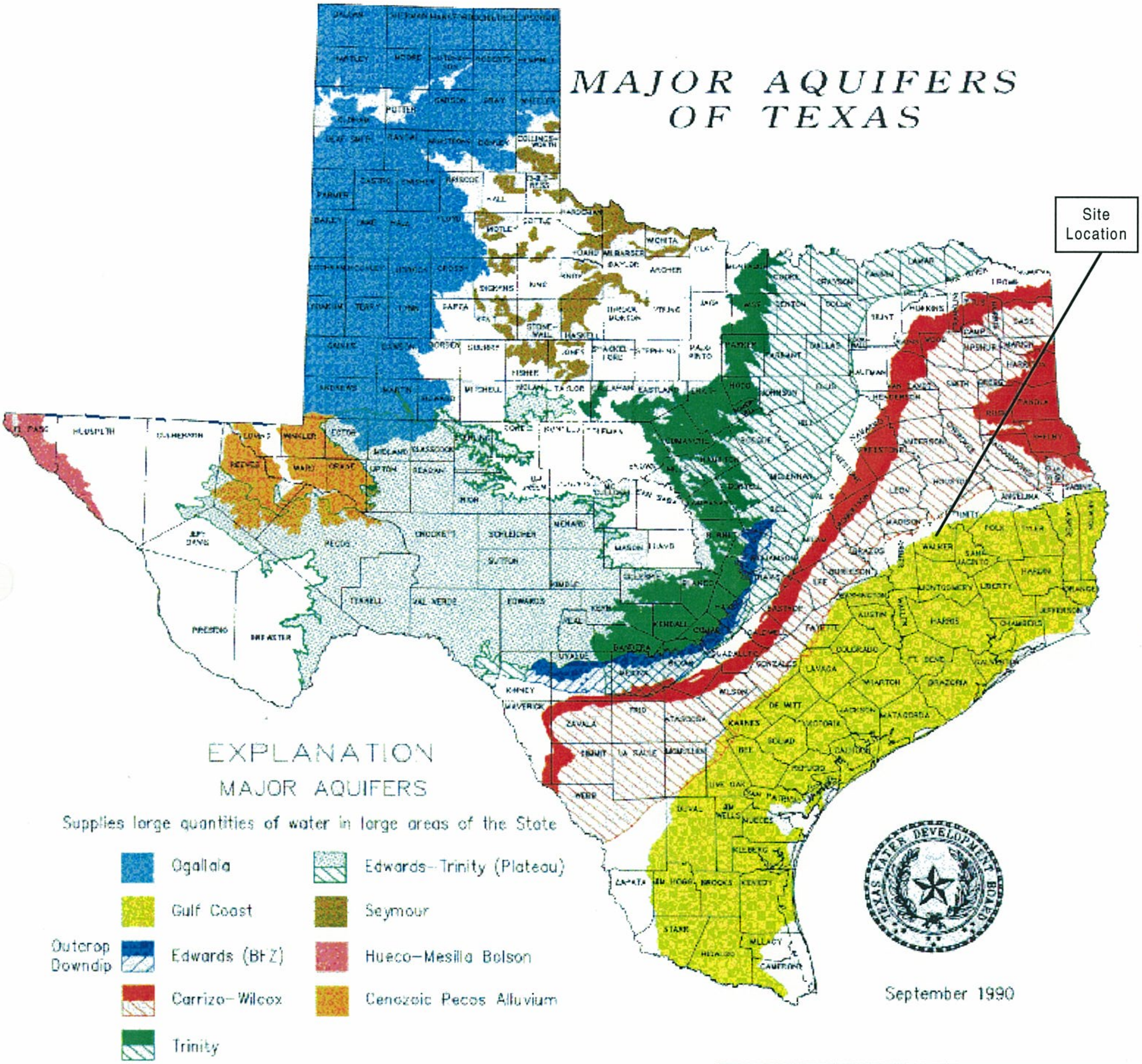
VI.B.1 – REGIONAL AQUIFERS

The Gulf Coast aquifer forms a wide belt along the Gulf of Mexico from Florida to Mexico. In Texas, the aquifer provides water to all or parts of 54 counties and extends from the Rio Grande northeastward to the Louisiana-Texas border. The aquifer extends from the Gulf Coast to approximately 100 to 120 miles inland, in Walker and Trinity counties. Municipal and irrigation uses account for 90 percent of the total pumpage from the aquifer. The Greater Houston metropolitan area is the largest municipal user, where well yields average about 1,600 gallons per minute.

The aquifer consists of complex interbedded clays, silts, sands, and gravels of Cenozoic age, which are hydrologically connected to form a large, leaky artesian aquifer system. Formation beds vary in thickness, composition; areal extent and individual beds normally cannot be traced over extended distances. This system comprises four major components consisting of the following generally recognized restricted sand layers. Above the Catahoula is the Jasper aquifer, primarily contained within the Oakville Sandstone. The Burkeville confining layer separates the Jasper from the overlying Evangeline aquifer, which is contained within the Fleming and Goliad sands. The Chicot aquifer, or upper component of the Gulf Coast aquifer system, consists of the Lissie, Willis, Bentley, Montgomery, and Beaumont formations, and overlying alluvial deposits. Not all formations are present throughout the system, and nomenclature often differs from one end of the system to the other. Maximum total sand thickness ranges from 700 feet in the south to 1,300 feet in the northern extent. According to information published in the USGS Water-Resources Investigation Report 99-4233, transmissivity ranges from 3,000 to 9,000 ft^2 /d (Carr and others, 1985) in the Chicot aquifer, from 3,000 to 15,000 ft^2 /d in the Evangeline aquifer, and from 2,500 to 10,000 ft^2 /d in the Jasper aquifer.

Maps of the major and minor aquifers in this area are shown on Figures VI.B.1-1 and VI.B.1-2. Figure VI.B.1-3 is a cross section of the aquifers. A cross reference of stratigraphic and hydrogeologic units is shown in Table VI.B.1-1. A record of wells, springs, and test holes located in Walker County and their appropriate use of water designation is shown in Attachment VI.B.A. Table VI.B.1-2 documents published water levels measured in water wells located within a three-mile radius of the site.

The Chicot and the Evangeline aquifers are the more prolific water producing units in the Gulf Coast aquifer followed by the Jasper aquifer and the Catahoula Formation. Water quality is generally good in the shallower portion of the aquifer. Ground water containing less than 500 mg/l dissolved solids is usually encountered to a maximum depth of 3,200 feet in the aquifer from the San Antonio River Basin northeastward to Louisiana. From the San Antonio River Basin southwestward to Mexico, quality deterioration is evident in the form of increased chloride concentration and saltwater encroachment along the coast.

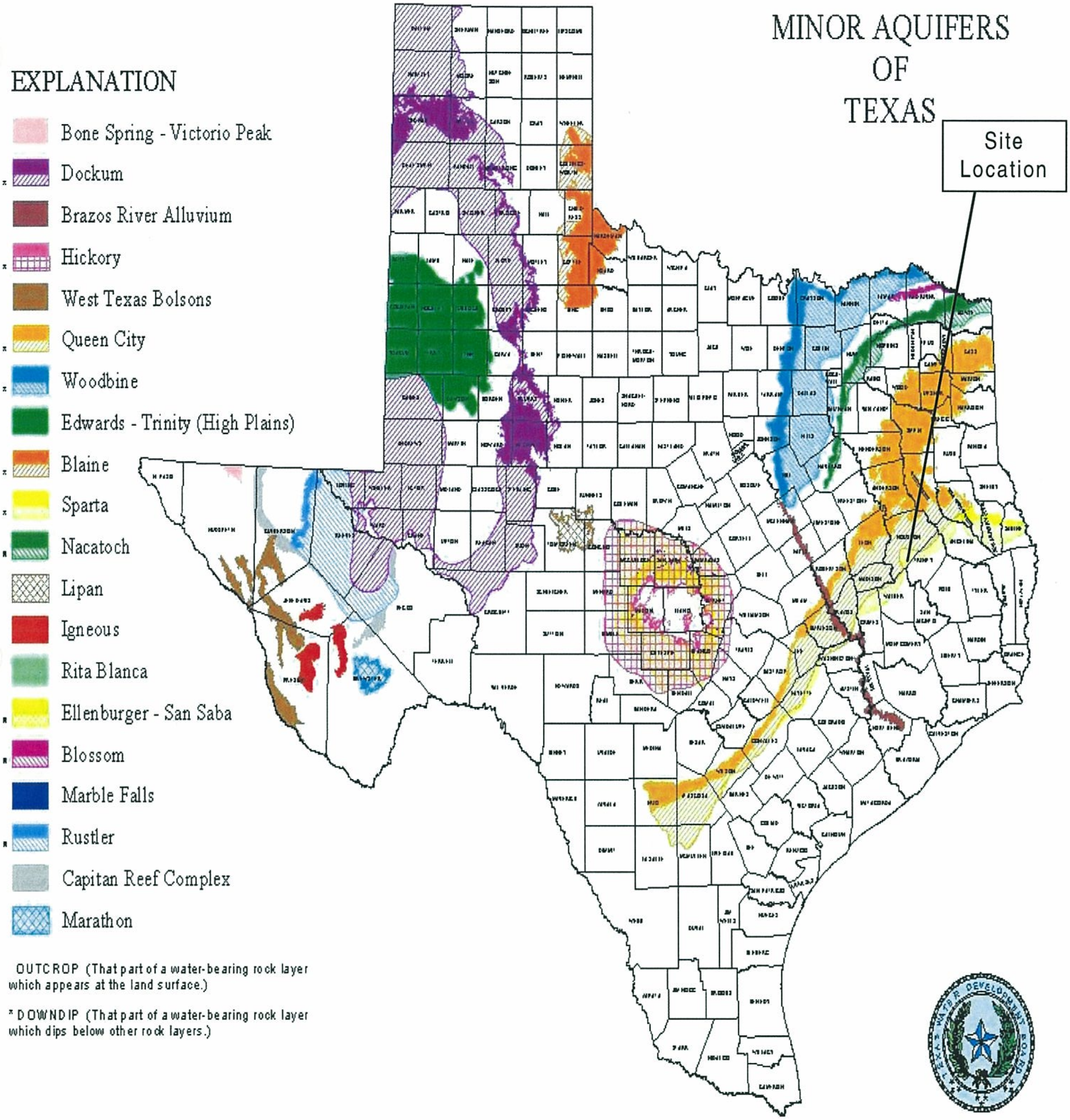


ENVIRONEERING, INC.

FIGURE VI.B.1-1

Major Aquifers of Texas

DRAWN BY:	DATE:	PROJECT NO.
	01/22/01	111-07



OUTCROP (That part of a water-bearing rock layer which appears at the land surface.)

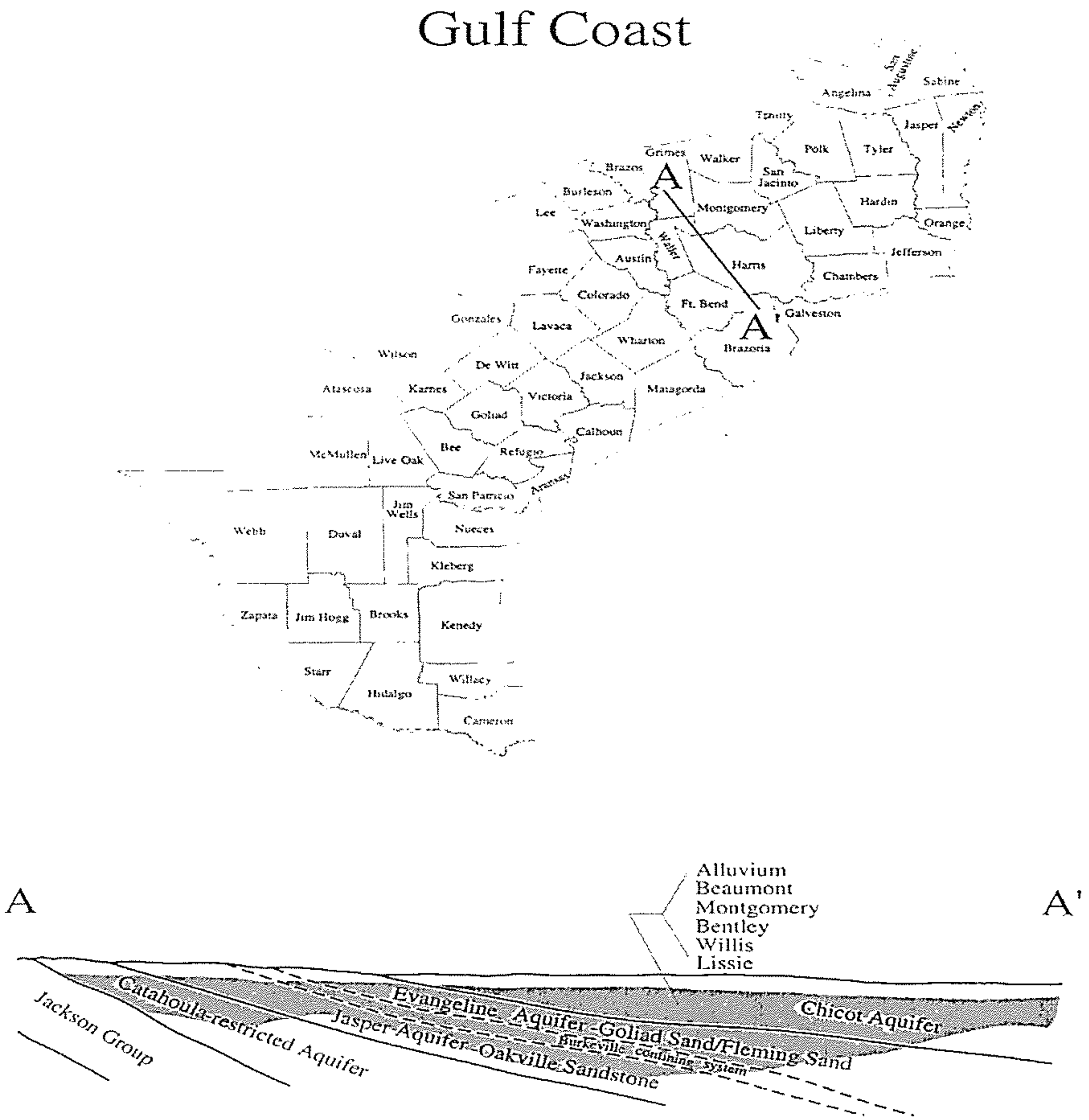
* DOWNDIP (That part of a water-bearing rock layer which dips below other rock layers.)

ENVIRONEERING, INC

FIGURE VI.B.1-2

Minor Aquifers of Texas

DRAWN BY:	DATE:	PROJ. NO.
DC	01/22/01	111-007



Modified from Baker, 1979

ENVIRONEERING, INC.

FIGURE VI.B.1-3

Aquifer Cross-Section

DRAWN BY:	DATE:	PROJECT NO.
	01/23/01	111-07

Table VI.B.1-1

Cross-reference of Stratigraphic and Hydrogeologic Units

System	Series	Stratigraphic Units	Hydrogeologic Units				Stratigraphic Units		
		Baker (1979)	Baker (1979)	Carr, et al. (1985)	Ryder (1988)	This Report	Alexander, et al. (1964)		
Quaternary	Holocene	Alluvium	Chicot Aquifer	Upper Chicot Aquifer	Holocene-upper Pleistoceene Permeable Zone	Upper Chicot Aquifer (Layer 1)		Alluvium	
	Pleistocene	Beaumont Clay						Beaumont Clay	
		Montgomery Fm							
		Bentley Fm		Lower Chicot Aquifer	Lower Pleistocene-upper Pliocene Permeable Zone	Lower Chicot Aquifer (Layer 2)		Lissie Formation	
		Willis Sand							
Tertiary	Pliocene	Goliad Sand	Evangeline Aquifer	Evangeline Aquifer	Lower Pliocene-upper Miocene Permeable Zone	Evangeline Aquifer (Layer 3)		Goliad Sand	
	Miocene	Flemming Fm	Burkeville Confining Unit Jasper Aquifer	Burkeville Confining Unit	Middle Miocene Confining Unit	Lagarto Confining Unit (Layer 4)		Lagarto Clay	
		Oakville Sandstone	Catahoula Confining System	Jasper Aquifer	Middle Miocene Permeable	Jasper Aquifer (Layer 5)		Oakville Sandstone	
		Catahoula Tuff			Lower Miocene-upper Oligocene Confining Unit			Catahoula Tuff	
	Oligocene	Anahuac Fm			Lower Miocene-upper Oligocene Permeable Unit				
		Frio Fm	Vicksburg/Jackson Confining Unit		Vicksburg/Jackson Confining Unit		Jackson Group	Frio Clay	
	Eocene	Frio Clay/Vicksburg Fm							
		Whitsett Fm							
		Manning Clay							
		Welborn Sandstone							
		Caddell Fm			Upper Claiborne Aquifer				
		Yegua Fm	Upper Claiborne Aquifer		Middle Claiborne Confining		Claiborne Group	Yegua Formation	
		Cook Mountain Fm	Middle Claiborne Confining		Middle Claiborne Aquifer			Cook Mountain-Sparta Sand Undifferentiated	
		Sparta Sand	Middle Claiborne Aquifer						
		Weches Fm						Mount Selman Formation	Post Bigford
		Queens City Sand			Lower Claiborne Confining				
		Reklaw Fm	Lower Claiborne Confining		Lower Claiborne/Upper Wilcox Aquifer				Bigford
	Paleocene	Carrizo Sand	Lower Claiborne/Upper Wilcox Aquifer					Carrizo Sand	
		Undifferentiated Wilcox			Middle Wilcox Aquifer		Wilcox Group		
		Willis Point Fm	Midway Confining Unit		Midway Confining Unit		Midway	Willis Point Fm	
		Kincaid Fm						Kincaid FM	

Table VI.B.1-2
Texas Water Development Board
Ground Water Data System
Wells Within Three Miles of Site
As of June 1, 1999

State Well Number	Aquifer Code	Well Depth	Elevation of Land Surface	Date of Measurement	Depth to Water From Land Surface	Change in Level Since Last Msmt.	Elevation of Water Level
6013303	122 CTHL	135	180	08/00/1940	-35.00		145
				07/05/1950	-57.28	-22.28	123
6013304	122 CTHL	475	170	11/15/1971	-22.00		148
				06/15/1976	-27.78	-5.78	142
6013304	122 CTHL	475	170	12/10/1976	-27.75	0.03	142
				12/06/1977	-30.86		139
				12/08/1978	-36.00	-8.25	134
				12/16/1981	-44.00	-8.00	126
				12/15/1982	-48.54	-4.54	121
				12/13/1983	-50.17	-1.63	120
				12/12/1984	-55.16	-4.99	115
				12/09/1985	-59.63	-4.47	110
				12/06/1986	-59.88	-0.25	110
				12/10/1987	-63.98	-4.10	106
				12/06/1988	-73.00	-9.02	97
				12/04/1989	-69.10	3.90	101
				12/04/1990	-70.80	-1.70	99
				1/28/1992	-65.72	5.08	104
				10/29/1992	-70.10	-4.38	100
				12/02/1993	-65.90	4.20	104
				12/06/1994	-64.50	1.40	106
6013304	122 CTHL	475	170	11/14/1995	-65.21	-0.71	105
				11/13/1996	-65.93	-0.72	104
				11/06/1997	-66.25	-0.32	104
				11/18/1998	-68.25	-2.00	102

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

During February through August, 1994, ground water samples were collected from wells in the outcrops of the Trinity, Carrizo-Wilcox, and Gulf Coast aquifers to determine the quality of ground water in the three major aquifers in the Trinity River Basin study unit. The samples were collected and analyzed for USGS National Water Quality Assessment Program. This information was published in USGS Water-Resources Investigation Report 99-4233.

As described in report 99-433, ground water samples were collected from fourteen shallow wells and ten deep wells in the Gulf Coast aquifer. Calcium was the dominant cation and bicarbonate the dominant anion. Total dissolved solid concentrations were greater than 500 mg/l in six wells in the Gulf Coast aquifer.

Ground water data collected from wells located within three miles are shown in Table VI.B.1-3 and Table VI.B.1-4.

The USGS report also stated that aquifer system recharge occurs mostly from infiltration of precipitation which averages 50 inches annually.

Table VI.B.1-3
Texas Water Development Board
Ground Water Data System
Wells Within Three Miles of Site
As of June 1, 1999

State Well Number	Date Sampled	Sample Number	Description	Value
6005804	6/26/1960	1	Iron, Total (ug/l as Fe)	200
	6/26/1960	2	Iron, Total (ug/l as Fe)	100
	7/00/1960	1	Iron, Total (ug/l as Fe)	600
	7/00/1960	2	Iron, Total (ug/l as Fe)	2500
6005804	7/26/1971	1	Iron, Total (ug/l as Fe)	400
	7/26/1971	1	Iron, Dissolved (ug/l as Fe)	100
	7/26/1971	1	Manganese, Total (ug/l as Mn)	20
	7/26/1971	1	Residue, Total Filterable (dried at 180C), mg/l	550
6005806	9/11/1978	1	Iron, Total (ug/l as Fe)	50
	9/11/1978	1	Manganese, Total (ug/l as Mn)	50
	9/11/1978	1	Residue, Total Filterable (dried at 180C), mg/l	537
6005807	5/3/1982	1	Iron, Total (ug/l as Fe)	70
	5/3/1982	1	Manganese, Total (ug/l as Mn)	50
	5/3/1982	1	Residue, Total Filterable (dried at 180C), mg/l	545
6013202	3/24/1992	1	Temperature, Water (celcius)	25.8
	3/24/1992	1	Oxidation Reduction Potential (ORP), Millivolts	-104
	3/24/1992	1	Nitrogen, Ammonia, Dissolved (mg/l as N)	0.43
	3/24/1992	1	Nitrite Nitrogen, Dissolved (mg/l)	0.01
	3/24/1992	1	Nitrate Nitrogen, Dissolved (mg/l)	0.01
	3/24/1992	1	Nitrogen, Kjeldahl (mg/l as N)	0.7
	3/24/1992	1	Arsenic, Dissolved (ug/l)	10
6013202 (cont.)	3/24/1992	1	Barium, Dissolved (ug/l)	20
	3/24/1992	1	Cadmium, Dissolved (ug/l)	10
	3/24/1992	1	Chromium, Dissolved (ug/l)	20
	3/24/1992	1	Copper, Dissolved (ug/l)	20
	3/24/1992	1	Iron, Dissolved (ug/l)	26
	3/24/1992	1	Lead, Dissolved (ug/l)	50

Table VI.B.1-3
Texas Water Development Board
Ground Water Data System
Wells Within Three Miles of Site
As of June 1, 1999

State Well Number	Date Sampled	Sample Number	Description	Value
	3/24/1992	1	Manganese, Dissolved (ug/l)	20
	3/24/1992	1	Silver, Dissolved (ug/l)	10
	3/24/1992	1	Zinc, Dissolved (ug/l)	20
	3/24/1992	1	Selenium, Dissolved (ug/l)	2
	3/24/1992	1	Alpha, Dissolved, PC/L	4
	3/24/1992	1	Beta, Dissolved, PC/L	8.2
	3/24/1992	1	Alkalinity, Field, Dissolved as $CACO_3$	195
	3/24/1992	1	Bromide, Dissolved (mg/l)	0.1
	3/24/1992	1	Mercury, Dissolved (ug/l)	0.2
6013204	3/13/1997	1	Temperature, Water (celcius)	24.5
	3/13/1997	1	Oxidation Reduction Potential (ORP), Millivolts	-70.4
	3/13/1997	1	Nitrogen, Ammonia, Dissolved (Mg/l as N)	0.1
	3/13/1997	1	Nitrite Nitrogen, Dissolved (Mg/l)	0.1
	3/13/1997	1	Nitrate Nitrogen, Dissolved (Mg/l)	0.1
	3/13/1997	1	Arsenic, Dissolved (ug/l)	5
	3/13/1997	1	Barium, Dissolved (ug/l)	33
	3/13/1997	1	Beryllium, Dissolved (ug/l)	1
	3/13/1997	1	Boron, Dissolved (ug/l)	520
	3/13/1997	1	Cobalt, Dissolved (ug/l)	1
	3/13/1997	1	Copper, Dissolved (ug/l)	2.9
	3/13/1997	1	Iron, Total (ug/l)	30
	3/13/1997	1	Iron, Dissolved (ug/l)	23
	3/13/1997	1	Lead, Dissolved (ug/l)	1
	3/13/1997	1	Manganese, Total (ug/l)	10
6013204 (cont.)	3/13/1997	1	Manganese, Dissolved (ug/l)	15
	3/13/1997	1	Thallium, Dissolved (ug/l)	2.5
	3/13/1997	1	Molybdenum, Dissolved (ug/l)	1
	3/13/1997	1	Nickel, Dissolved (ug/l)	1.6

Table VI.B.1-3
Texas Water Development Board
Ground Water Data System
Wells Within Three Miles of Site
As of June 1, 1999

State Well Number	Date Sampled	Sample Number	Description	Value
	3/13/1997	1	Strontium, Dissolved (ug/l)	40
	3/13/1997	1	Vanadium, Dissolved (ug/l)	1.3
	3/13/1997	1	Zinc, Dissolved (ug/l)	9.1
	3/13/1997	1	Antimony, Dissolved (ug/l)	1
	3/13/1997	1	Aluminum, Dissolved (ug/l)	3
	3/13/1997	1	Lithium, Dissolved (ug/l)	50
	3/13/1997	1	Selenium, Dissolved (ug/l)	5
	3/13/1997	1	Alkalinity, Field, Dissolved as $CACO_3$	144
	3/13/1997	1	Iodide (mg/l)	0.15
	3/13/1997	1	Bromide, Dissolved (mg/l)	0.7
6013205	7/09/1992	1	Iron, Total (ug/l)	80
	7/09/1992	1	Manganese, Total (ug/l)	10
6013304	6/10/1980	1	Iron, Total (ug/l)	100

Table VI.B.1-4
Texas Water Development Board
Ground Water Data System
Ground Water Well Data* – Jackson Aquifer
Wells Within Three Miles of Site
As of June 1, 1999

Well	Aquifer	Date Of Sample	Well Depth (feet)	pH	Silica	Calcium	Magnesium	Sodium	Potassium	Bicarb	Sulfate	Chloride	Fluoride	Nitrate	Diss. Solids
6005801	124 JCKS	01/31/61	480	7.7	43	2	1	191		314	17	105			513
	124 JCKS	09/15/48	2715		42	15	3	141		268	25	78			435
	124 JCKS	06/26/60	2715	8.3	34	5	0	153		295	0	74			411
	124 JCKS	06/26/60	2715	8.6	35	3	0	144		254	0	66			372
	124 JCKS	07/00/60	2715	7.9	34	2	0	156		271	17	74			416
	124 JCKS	07/00/60	2715	8.1	36	3	1	260		376	12	180			676
6005804	124 JCKS	07/26/71	480	7.5	40	3	4	200		305	21	121	0.6	0.2	539
6005806	124 JCKS	09/11/78	552	7.4	47	2	<1	195		289	25	117			528
6005807	124 JCKS	05/03/82	475	7.5	40	3	1	192		288	27	113	0.5	0.1	517
6013202	122 CTHL	03/24/92	504	7.1	45	3	<2	133	7	255	2	64	1.3	0	382
6013204	122 CTHL	06/19/92	388	7.4		0	0	136		166	<1	125	0.9	0	344
	122 CTHL	03/13/97	388	7.8	71	4	0	146	8	170	0	133	0.7	0.4	446
6013205	122 CTHL	07/09/97	504	8.2		0	0	98		84	<1	17	1.0	0	158
6013301	122 CTHL	09/14/48	395		46	77	7	327		164	293	348	0	2.2	1180
6013304	122 CTHL	06/15/76	475	7.6	41	8	1	121		234	4	71	1.0	0.4	362
	122 CTHL	06/10/80	475	7.5	46	5	1	124		226	2	73	1.0	0.1	363

* All units in mg/l except pH which is in standard units

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

VI.B.2 – FACILITY-SPECIFIC GROUNDWATER CONDITIONS

Borings for the installation of piezometers were initially installed surrounding the Ellis landfill in July 1990. Boring logs, piezometer development information and cross sections depicting the ground water levels encountered during drilling are shown in Appendix C of the Ground Water Monitoring Plan (GWMP) given in Attachment VI.B.B. Since that time three ground water sampling events, which included ground water level measurement, have been performed. The dates on which these events occurred, the depth to water measured, and the ground water levels calculated are shown in Table VI.B.2-1.

As stated earlier in Section VI.B.1, the major regional aquifer for this area is the Gulf Coast aquifer which consists of the Catahoula, Jasper, Evangeline, and Chicot major components in that order. The upper most aquifer appears to be located approximately nine to eighteen feet below grade depending upon time of year and previous rainfall activity. A ground water well and boring location map is shown in Figure VI.B.2-1. Ground water contour maps of the upper most aquifer are shown in Figures VI.B.2-2 and Figure VI.B.2-3.

Hydraulic gradient ranged from 5.7×10^{-4} ft/ft to 1.8×10^{-3} ft/ft across the site during the August 1990 sampling event and from 6.9×10^{-4} ft/ft to 9.6×10^{-4} ft/ft during the October 2000 sampling event. The gradient is to the northeast in the direction of the Trinity River.

Ground water flow velocities were calculated using Darcy's Law: $Q = Ki/\theta_c$, where K is permeability of the media and i is hydraulic gradient and θ_c is effective porosity. Permeability and effective porosity were assumed, based on published literature and observed soil type, to be 500 gal/day/sf and 0.25, respectively. The calculated average hydraulic conductivity for the August 1990 and October 2000 sampling events combined was 9.49×10^{-4} ft/ft. Thus,

$$Q_{avg} = ((500 \text{ gal/day/sf} \times 9.49 \times 10^{-4} \text{ ft/ft})/0.25) \times 1 \text{ cf}/7.48 \text{ gal} \times 365 \text{ days/yr.}$$
$$Q_{avg} = 93 \text{ ft/yr}$$

Based on the minimum and maximum hydraulic gradients calculated from field data, 5.7×10^{-4} ft/ft and 1.83×10^{-3} ft/ft, respectively, the following ground water flow velocities were calculated as follows:

$$Q_{min} = ((500 \text{ gal/day/sf} \times 5.7 \times 10^{-4} \text{ ft/ft})/0.25) \times 1 \text{ cf}/7.48 \text{ gal} \times 365 \text{ day/yr.}$$
$$Q_{min} = 56 \text{ ft/yr}$$

$$Q_{max} = ((500 \text{ gal/day/sf} \times 1.83 \times 10^{-4} \text{ ft/ft})/0.25) \times 1 \text{ cf}/7.48 \text{ gal} \times 365 \text{ day/yr.}$$
$$Q_{min} = 176 \text{ ft/yr}$$

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

Since the landfill is cut into the aquifer, potential pollutant migration would be directly into the aquifer migrating horizontally toward the Trinity River. The Trinity River is the likely discharge point.

SECTION VI.B

FACILITY GROUND WATER REPORT
Texas Department of Criminal Justice (TDCJ)
Ellis Hazardous Waste Landfill
Huntsville, Texas

Table VI.B.2-1

Historic Ground Water Elevations

Well	Casing Elevation (Relative to MSL)	Depth to Water (Measured from Top of Casing)	Corrected Ground Water Elevation (ft)
July 31, 1990 Sampling Event			
P-1	143.48	13.49	129.9
P-2	143.82	14.10	129.72
P-3	139.36	9.82	129.54
P-4	139.19	9.42	129.77
P-5	146.13	16.11	130.02
August 14, 1990 Sampling Event			
P-1	143.48	13.61	129.87
P-2	143.82	14.20	129.62
P-3	139.36	10.00	129.36
P-4	139.19	9.62	129.57
P-5	146.13	16.24	129.89
October 24-25, 2000 Sampling Event			
P-1	143.48	15.98	127.50
P-2	143.82	-	-
P-3	139.36	-	-
P-4	139.19	11.93	127.26
P-5	146.13	18.43	127.70
P-6	139.00	11.87	127.12

ATTACHMENT V1.B-A

RECORD OF WELLS, SPRINGS, AND TEST HOLES IN WALKER COUNTY

Jun 1, 1999

TEXAS WATER DEVELOPMENT BOARD
GROUND WATER DATA SYSTEM

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAM-ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASURE-MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
38-61-703		310115	952845							NOT-APPL			- - - -			
38-61-704		310135	952753		56					124JCKS			- - - -		H	
60-03-802		305244	954107		26					124JCKS			- - - -		H	
60-03-803		305234	954018		183					124YEGU	222	-54.00 -47.44	01-14-1972 12-15-1982		H S	
60-03-902	Southwestern Electric Power Company	305249	953912	1973	2314	C S	13 7	0 2254	2254 2314	124SPRT	220	10.00 -30.10	07-10-1973 11-18-1997	T 25	U	
60-04-501	Carl Morris	305545	953324	1942	2800					124QNCT	175		- - - -	N	S	
60-04-901	McMoRan Expl.	305242	953030	1978	324					124JCKS	202		- - - -	N	U	
60-05-101	D.B. Dewalt	305802	952858	1932	40					124JCKS	175		- - - -		H	
60-05-401	Waterco, Inc.	315608	952951	1971	474	C S	4 3	0 444	444 474	124JCKS	147		- - - -	S E 1.0	P	Owners Deep River Well
60-05-701	John Smithers	305333	952921	1960	316					124JCKS	205		- - - -	S E 4.3	D	
60-05-702	TDCJ-Estelle Unit Well #1	305330	952905	1983	358					124JCKS	200		- - - -	S E	I	Owners well #1. Completed to 358. Plugged back from 378.
60-05-703	TDCJ-Estelle Unit Well #2	305335	952859	1983	380					124JCKS	190		- - - -	S E	I	Owners well #2. Completed to 380. Plugged back from 410.
60-05-801	TDC Smithers State Farm Well #1	305301	952656	1961	480					124JCKS	180		- - - -	T E 15	P	

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAM-ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASURE-MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-05-802	TDC	305434	952605	1940	183					124JCKS	139		- - - -		T	
60-05-803	TWC Smithers Prison Farm	305258	952650	1960	2715					124JCKS	142		- - - -	T E 40	T	
60-05-804	TDCJ-Ellis Unit I Well #2	305248	952729	1971	480					124JCKS	200		- - - -	T E 40	T	Owners well #2.
60-05-805	TDCJ-Ellis Unit I Well #1.	305303	952715		478					124JCKS	215		- - - -	T E	I	Owners well #1.
60-05-806	TDCJ-Ellis Unit I Well #3	305255	952729	1978	552					124JCKS	190		- - - -	T E	I	Owners well #3.
60-05-807	TDCJ-Ellis Unit I Well #4	305312	952725	1982	475					124JCKS	190		- - - -	T E	I	Owners well #4.
60-10-201	J.C. Walker	305047	954930	1956						124YEGU	250		- - - -		I	
60-10-202	R.B. Stutts	305050	954902	1947	336					124YEGU	243	-35.21 -37.36	09-03-1948 07-07-1958		S I	
60-11-501	Johnny Burns	304735	954126	1947	42					122CTHL	302		- - - -	Z	D S	FLOWING WELL
60-11-502	J.H. Rose est.	304746	954158	1971	683					124JCKS	328	-130.00 -134.30	02-22-1971 06-16-1976	S E	D S	
60-11-601	The Perrier Group	304828	953910	1994	78	C C C S	10 6 4 4	0 0 54 58	21 58 58 78	124JCKS	243		- - - -	N	B	Moffit Springs. Reported flow 250 GPM April 13, 1994.
60-11-701	J.H. Rose	304712	954316	1948	714					124JCKS	300		- - - -	S E 1	H S	
60-11-801	J.W. Aden	304725	954119	1946	100					122CTHL	300		- - - -		H	FLOWING WELL, SEVERAL FLOWING WELLS IN THIS GROUP 40-100' DEEP

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAM-ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASURE-MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-11-902	C.L. Robinson	304553	953930	1948	120					122CTHL	300		- - - -		H S	
60-11-903		304504	953853		83					122CTHL	340	-74.19 -73.02	08-27-1948 07-07-1955		H S	
60-11-904	Pine Prairie WSC System E	304551	953950	1985	444	C C S	9 4 4	0 284 368	355 368 438	122CTHL	280	0.00	11-08-1985 - -	S E	P	Owner's well-Hwy. 75 well. Reported yield 165 gpm with 9 feet drawdown after pumping 36 hours in 1985.
60-12-301	Paul Beathard	305110	953019	1964	278					122CTHL	240	-70.00 -91.25	07-15-1964 11-18-1998	S E 0.75	H S	
60-12-501		304927	953302		80					122CTHL			- - - -		S	
60-12-502		304827	953435		183					122CTHL	272	-60.00 -75.32	09-17-1968 12-09-1985		U	
60-12-503	ANNS Water System	304920	953628	1971	317	C S	4 2	0 297	297 317	122CTHL	235	75.00	05-21-1971 - -	S E 0.5	P	
60-12-801	Walker Co. Rural WSC	304710	953313	1985	410	C S	6 6	0 370	370 410	122CTHL	270	-84.00	02-25-1985 - -	S E	P	Owner's well-Peirce Rd. System D. Reported yield 340 gpm with 40 feet drawdown after pumping 36 hours in 1985.
60-12-802	Pine Prairie WSC System A	304648	953348	1971	627					122CTHL	295		- - - -		P	
60-13-201	Pine Springs MUD	305213	952629	1970	390					122CJCK	183		- - - -	S E 60	P	
60-13-202	Riverside Water Supply Corp. Well #2.	305022	952511	1981	504					122CTHL	190		- - - -	S E	P	Owner's well #2.
60-13-203	Riverside Water Supply Corporation. Well #4.	305020	952516	1988	460					122CTHL	180		- - - -	S E	P	Owners well #4.
60-13-204	Riverside Water Supply Corporation. Well #5.	305049	952518	1992	388					122CTHL	210		- - - -	S E	P	Owners well #5.

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAM-ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASURE-MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-13-205	Riverside Water Supply Corporation. Well #6.	305038	952521	1992	504					122CTHL	210		- - - -	S E	P	Owners well #6.
60-13-206	Riverside Water Supply Corporation. Well #1	305028	952509	1980	509					122CTHL	185		- - - -	S E	P	Owners well #1.
60-13-301	The Hillwhite Co. Riverside	305121	952356	1947	395					122CTHL	200		- - - -	J E 1	D I	
60-13-302	Riverside School Riverside	305113	952405	1955	412					122CTHL	190		- - - -	J E 3	P	
60-13-303	Riverside School	305115	952401	1940	135					122CTHL	180	-35.00 -57.28	08-00-1940 07-05-1950	J E .5	S	
60-13-304	Bill Daffin	305030	952330	1971	475					122CTHL	170	-22.00 -68.25	11-15-1971 11-18-1998	S E	U	
60-13-305	R. VINCENT Shorewood Forest WSC	305053	952302	1976	330					122CTHL	200		- - - -	S E 1	D	
60-13-306	W. Rainwater	305109	952415	1971	437					122CTHL	180		- - - -	S E 1	D	
60-13-307	Riverside Water Supply Corporation. Well #3	305101	952422	1964	650					122CTHL	220		- - - -	S	U	Owners well #3.
60-13-328	Lake Livingston Heights	305116	952341	1966	391					122CTHL	190		- - - -	S E 2.0	P	
60-13-401	Lake Falls Estates Rosa Davidson	304918	952901	1971	210					122CTHL	175		- - - -	E	P	
60-13-402	Riverside Water Corp. Walnut Creek #1	304832	952842	1994	552	C S S	4 3 3	0 512 512	516 552 552	122CTHL	190	37.00	08-18-1994 - -	S E 7.5	P	Owners well #8 Estimated yield 80 GPM Cemented from 0 to 5555 ft
60-13-403	Riverside Water Corp. Walnut Creek #2	304838	952840	1996	580	C C S	4 3 3	0 519 540	555 560 580	122CTHL	190	38.00	08-08-1996 - -	S E 7.5	P	
60-13-404	Riverside Water Corp. Walnut Creek #3	304830	952904	1996	600	C C	4 3	0 528	550 560	122CTHL	190	80.00	09-28-1996 - -	S E 7.5	P	Owners well #9 Estimated yield 50-60 GPM Cemented fom 0 to 550 ft

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COM- PLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAM- ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASURE- MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-13-404	(Continued)					S C	3 3	560 590	590 600							
60-13-501	Sam Houston St. Teachers College	304908	952541	1942	634					122CTHL	226		- - - -	T E 15	P	
60-13-502	Sam Houston State Teachers Collage	304840	952600	1942	618					122CTHL	212	-90.00 -101.92	08-18-1942 05-10-1966	T E 15	P	
60-13-503	Sam Houston State Teachers Collage	304839	952602	1943	735					122CTHL	214		- - - -	T E 15	P	
60-13-701	M.C. Industries of TX Houston, Texas	304727	952856	1975	671					122CTHL	211		- - - -	S E 1	P	
60-13-901	C.Y. Townley Hunstville	304524	952441	1947	214					122OKVL	360		- - - -	J E 2	H	
60-13-902	Cy Townley	304526	952440							122JSPR	390		- - - -	S E	H	
60-13-903	John Howell	304634	952458	1984	244					122OKVL	305		- - - -	S E	D S	
60-14-102	Carolina Cove WSC	305115	952042	1984	400					122CTHL	185		- - - -	S E 5.0	P	
60-14-103	Carolina Cove WSC	305117	952041	1968	404	C S	4 3	0 373	373 404	122CTHL	185	25.00	12-02-1968 - -	S E 5.0	P	
60-14-104	Waterco, Inc.	305119	952046	1979	371	C S	4 3	0 349	349 371	122CTHL	170	68.00	11-26-1979 - -	S E	P	Cemented from 0 to 349 ft Owners Green-Rich #1 well
60-14-105	Waterco, Inc.	305122	952046	1978	368	C S	4 3	0 348	348 368	122CTHL	170	68.00	11-15-1978 - -	S E	P	Cemented from 0 to 348 ft. Owners Green-Rich #2 Well. Well is Capped.
60-14-106	Waterco, Inc.	305204	952049	1973	245	C S	4 3	0 168	168 198	122CTHL	145	11.00	09-15-1973 - -	S E	P	Owners Sterling Island Well
60-14-401	R.D. Jameson	304811	952144		200					122CTHL			- - - -		H S	

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COMPLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAMETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASUREMENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-18-201		304255	954735							122JSPR	295		- - - -	N	U	Flowing well.
60-18-501		304122	954853		204					122CTHL			- - - -		H S	
60-18-601		304116	954608		243					122CTHL			- - - -		H S	
60-18-801		303928	954908		86					122CTHL	383	-26.97 -31.36	07-29-1948 07-08-1958			
60-18-901		303748	954626		31					122OKVL			- - - -		H S	
60-19-102		304256	954314		2174					124SPRT			- - - -		U	
60-19-201	Walker Co. Rural WSC	304443	954056	1974	580	C C S C	9 7 7 7	0 492 536 576	534 536 576 580	122CTHL	330	-45.00	10-15-1974 - -	S E	P	Owner's well-Hwy. 1696. Sytem B.
60-19-301		304457	953927		243					122CTHL			- - - -		S	
60-19-302	Johnson	304455	953951	1974	579					124JCKS	320	-26.00 -73.15	08-09-1974 11-19-1998	S E	H S	
60-19-401	Davis	304105	954418	1972	471					122CTHL	340	-69.58 -72.90	06-16-1976 11-06-1997	S E	H	
60-19-403	Westway Baptist Church	304100	954423	1992	454					122CTHL	355	-92.00	11-10-1983 - -	S E	H	
60-19-501		304129	954027		205					122CTHL			- - - -		H S	
60-19-601	Pine Prairie WSC System C-M Williams	304132	953839	1977	440					122CTHL	385		- - - -	S E	U	Owners well System C-M Williams

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

WELL	OWNER	LATITUDE	LONGITUDE	DATE COM- PLETED	DEPTH OF WELL (FT.)	CASING AND SCREEN DATA				WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	WATER LEVEL		METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
						CASING OR SCREEN	DIAM- ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)			MEASURE- MENT FROM LSD (FT.)	DATE			
60-19-801		303916	954023		42					100ALVM			- - - -		S	
60-19-802		303917	954004	1948						122JSPR	225		- - - -	N	U	Flowing well.
60-20-101		304431	953722		396					122CTHL			- - - -		H	
60-20-106	TDCJ-Administration Building. Well #1.	304457	953644		575					122CTHL	390		- - - -	S E	I	Owners well #1.
60-20-107	TDCJ-Administration Building. Well #2.	304457	953644		575					122CTHL	390		- - - -	S E		Owners well #2.
60-20-201	City of Huntsville Well #8.	304313	953250	1940	713					122CTHL			- - - -		U	
60-20-202	City of Huntsville Well #10.	304308	953250	1951	832					122CTHL			- - - -		U	
60-20-204	TDCJ-Wynne Unit	304418	953423	1939	837					122CTHL			- - - -		U	The location of this well is unknown.
60-20-205	City of Huntsville Well #7.	304258	953245	1937	673					122CTHL	450	-202.55 -204.22	04-08-1947 04-03-1968		U	
60-20-206	City of Huntsville Well #9.	304311	953256	947	779					122CTHL			- - - -		U	
60-20-207		304434	953244		236					122CTHL			- - - -		H S	
60-20-208		304315	953254		322					122CTHL	355	-144.85 -148.00	07-15-1948 07-05-1950			
60-20-301		304236	953036		375					122CTHL			- - - -		H	
60-20-302		304426	953113		199					122CTHL			- - - -		H	

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COMPLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAMETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASUREMENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-20-401	Walker Co. Rural WSC	304154	953651	1986	771	C C S C	9 4 4 4	0 617 723 761	721 723 761 771	122CTHL	405	-221.00	07-26-1986 - -	S E	P	Owner's well-Fairgrounds well,Sys.F Reported yield 150 gpm with 230 feet drawdown after pumping 36 hours in 1986.
60-20-402	Pine Prairie WSC System C-#7	304158	953705	1993	800					122CTHL	400		- - - -	S E 50.00	P	Owners well System C-#7.
60-20-403	City of Huntsville Timberwilde Addition	304218	953712	1979	402	C C S	6 2 3	0 291 312	300 312 402	122CTHL	389		- - - -	S E	P	Owners Timberwilde well Estimated yield 150 GPM.
60-20-404	ANNS Water System	304148	953636	1976	500	C C S	4 3 3	0 454 480	465 480 500	122CTHL	390	177.00	11-15-1976 - -	S E	P	Owners system #1 Estimated yield 30 GPM Cemented from 0 to 465 ft
60-20-503	City of Huntsville Well #19.	304042	953300	1970	1264					122CTHL	385	-296.00 -339.03	03-11-1971 09-30-1997	T E 200.00	P	City well #19. Completed to 1264. Plugged back from 1407.
60-20-504	City of Huntsville Well #18.	304110	953259	1968	1410					122CTHL	400		- - - -		P	Owners well #18. Completed to 1410. Plugged back from 1481.
60-20-505	City of Huntsville Well #17	304127	953240	1965	1290					122CTHL	465		- - - -		P	Owners well #17. Completed to 1290. Plugged back from 1450.
60-20-601	City of Huntsville Well #14.	304202	953201	1958	1215					122CTHL	465		- - - -		P	Owners well #14. Completed to 1215. Plugged back from 1260.
60-20-602	City of Huntsville Well #13.	304144	953146	1958	1270					122CTHL	430		- - - -	T E	P	Owners well #13. Completed to 1270. Plugged back from 1285.
60-20-603	City of Huntsville Well #12	304222	953227	1958	1188					122CTHL	490	-331.40 -420.00	05-31-1958 09-30-1997	T E	P	City well #12. Completed to 1178. Plugged back from 1256.
60-20-604		304214	953049		110					122JSPR			- - - -		I	
60-20-605	Texas Department of Corrections- Goree U	304009	953034		290					122CTHL			- - - -		P	

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

WELL	OWNER	LATITUDE	LONGITUDE	DATE COM- PLETED	DEPTH OF WELL (FT.)	CASING AND SCREEN DATA				WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	WATER LEVEL		METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
						CASING OR SCREEN	DIAM- ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)			MEASURE- MENT FROM LSD (FT.)	DATE			
60-20-607		304155	953213		196					122CTHL	460	-143.55 -153.07	10-18-1948 07-15-1957		H	
60-20-609	City of Huntsville Well #16.	304206	953138	1964	1240					122CTHL	419		- - - -		U	Owners well #16. Completed to 1240. Plugged back from 1485.
60-20-610	TDCJ-Goree Unit Well #2	304022	953051	1973	840					122CTHL	440		- - - -	T E	I	Owners well #2. Completed to 840. Plugged back from 1407.
60-20-611	City of Huntsville Well #15	304124	953209	1961	1316					122CTHL	450		- - - -		P	Owners well #15. Completed to 1317. Plugged back from 1411.
60-20-612	City of Huntsville Well #20	304034	953217	1975	1380					122CTHL	400		- - - -		P	Owners well #20. Completed to 1380. Plugged back from 1403.
60-20-701		303756	953602		115					122JSPR			- - - -		S	
60-20-902		303933	953145		160					122JSPR			- - - -		S	
60-20-903	Little Thicket Mobile Home Park, Well #1.	303923	953024	1970	175					122JSPR	435		- - - -	E	P	Owners well #1.
60-20-904	Little Thicket Mobile Home Park. Well #2.	303923	953025	1983	169					122JSPR	435		- - - -	E	P	Owners well #2.
60-21-102	Texas Parks & Wildlife Fish Hatchery	304445	952835	1931	211					122JSPR	253	-12.00 -26.65	00-00-1931 11-14-1995	J E	H	Historical observation well.
60-21-103	Unknown	304231	952934		147					122JSPR	381	-75.62 -76.84	07-15-1948 11-12-1996		U	Historical observation well.
60-21-201	Lake Jackson Est. III	304248	952522	1994	420					122JSPR	400		- - - -	S E	P	
60-21-302		304354	952335		140					122JSPR			- - - -		H	
60-21-402	Phelps Water Supply Corporation Well #2	304218	952831	1971	1426					122CTHL	395		- - - -	S E	P	Owners well #2.

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAM-ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASURE-MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-21-403	Phelps Water Supply Corporation, Well #1	304219	952801	1964	1272					122CTHL	420		- - - -	S E	P	Owners well #1.
60-21-501		304221	952720		386					122JSPR			- - - -		H	
60-21-502	Phelps Water Supply Corporation, Well #3	304140	952541	1992	980					122CTHL	460		- - - -	S E	P	Owners well #3.
60-22-101	Dodge-Oakhurst Water Supply Corp. (#1)	304442	952146	1968	810	C C S C S C	9 5 5 5 5 5	0 623 728 750 759 795	720 728 750 759 795 808	122CTHL	395	-216.00 -237.95	07-25-1968 12-06-1994	S E 15.00	P	Owner's well #1. Reported yield 112 gpm with 40 feet drawdown after pumping 24 hours in 1968. Historical observation well.
60-27-601		303335	953810		120					122JSPR			- - - -		H	
60-27-602	U. S. Forestry Service (Stubblefield Lake)	303339	953815	1982	340					122JSPR	210	-1.00	11-03-1982 - -	S E	P	
60-28-101		303507	953659		250					122JSPR			- - - -		H	
60-28-301	Huntsville State Park	303721	953157	1950	203					122JSPR	340	-83.00 -130.05	06-00-1950 11-19-1998	S E	P	
60-28-401		303324	953719		30					121EVGL			- - - -			
60-28-702		303121	953617		185					121EVGL			- - - -			
60-28-802	National Forest No. 1	303143	953348	1989	181					122JSPR	315	-75.34 -74.15	02-01-1991 09-30-1998		U	
60-28-803	National Forest No. 2	303143	953348	1989	114					122JSPR	315	-75.67 -75.61	02-01-1991 09-30-1998		U	
60-28-804	National Forest No. 3	303143	953348	1989	35					122BKVL	315		- - - -		U	

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING AND SCREEN DATA CASING OR SCREEN	DIAM-ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	WATER LEVEL MEASURE-MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-28-904	U. S. Forestry Service New Waverly Work Centr	303148	953219	1964	396					122JSPR	330		- - - -	S E	H	
60-29-401	New Waverly HS	303247	952836	1934	180					121EVGL			- - - -	C E 2.0	P	
60-29-403	Louis Stray	303341	952826	1912	360					122JSPRU	380	-94.70 -31.50	00-00-1912 12-05-1994		U	Historical observation well.
60-29-404	Louisiana Pacific Corp	303412	952826	1970	260	S	4	240	260	122JSPR	392	-65.47	04-04-1979 - -	S E 3.0	P	
60-29-405	Louisiana Pacific Corp	303411	952824	1970	577					122JSPR	393		- - - -	T E 50	H	
60-29-406	Louisiana Pacific Corp	303408	952806	1975	198					122JSPR	378	-103.37	04-04-1979 - -	S E	N	
60-29-407	Louisiana Pacific Corp	303357	952813	1977	566					122JSPR	397		- - - -	S E	N	
60-29-701	New Waverly Gin Co.	303220	952852	1930	190					122JSPR	360	-79.15 -78.83	05-08-1948 07-07-1953	S E	N	
60-29-704	City of New Waverly Well #1	303215	952850	1963	620					122JSPRU	363	-130.00 -207.00	09-00-1963 11-14-1995	S E	P	Owners well #1. Historical observation well.
60-29-705	R D Hardy	303212	952904	1947	190					121EVGL	349		- - - -	J E 0.75	H	
60-29-707	City of New Waverly Well #3	303212	952911	1985	600	C C S C S C S C S C S	18 12 12 12 12 12 12 12 12 12 12	0 0 352 376 388 400 421 438 450 474 508	340 352 376 388 400 421 438 450 474 508 524	122JSPR	335	-160.00 -206.00	07-30-1985 11-13-1996	T E	P	Owner's well #3. Reported yield 650 gpm with 85 feet drawdown after pumping 24 hours in 1985.

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Walker

						CASING AND SCREEN DATA						WATER LEVEL				
WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING OR SCREEN	DIAM-ETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	MEASURE-MENT FROM LSD (FT.)	DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
60-29-707	(Continued)					C S C	12 12 12	524 540 584	540 584 600							
60-29-708	City of New Waverly Well #2	303221	952846	1977	587					122JSPRU	355	-206.35 -212.85	11-13-1996 11-19-1998		P	Owners well #2. Current Observation well.
60-29-803	Fred Nelson	303148	952556	1944	180					121EVGL	296		- - - -	J E 1.0	H	
60-29-902	W O Ellisnor	303156	952330		30					112CKCT	440		- - - -	P W	H	
60-29-904	Captain Parry	303148	952354	1972	350					122JSPRU	436	-160.00 -172.11	06-26-1972 12-05-1977	S E	H	
60-29-905	Jasper Mission Baptist Church	303202	952343	1976	298	C S	4 4	0 278	278 298	122JSPR	420	-159.00	03-31-1976 - -	S E	H	Reported yield 20 gpm with 30 feet drawdown after pumping 1 hour in 1976.
60-29-906	Harthorne Baptist Church	303154	952336	1976	356	C C S	4 3 3	0 313 346	313 346 356	122JSPR	430	-180.00	08-12-1976 - -	S E	H	

Jun 1, 1999

TEXAS WATER DEVELOPMENT BOARD
GROUND WATER DATA SYSTEM

TABLE OF AQUIFER CODES AND AQUIFER NAMES USED
COUNTY - Walker

USGS CODE	AQUIFER NAME
100ALVM	ALLUVIUM
112CHCT	CHICOT AQUIFER
121EVGL	EVANGELINE AQUIFER
122BKVL	BURKEVILLE AQUICLUDE
122CJCK	CATAHOULA TUFF AND JACKSON GROUP
122CTHL	CATAHOULA FORMATION
122JSPR	JASPER AQUIFER
122JSPRU	JASPER AQUIFER,UPPER UNIT
122OKVL	OAKVILLE SANDSTONE
124JCKS	JACKSON GROUP
124QNCT	QUEEN CITY SAND OF CLAIBORNE GROUP
124SPRT	SPARTA SAND
124YEGU	YEGUA FORMATION
NOT-APPL	AQUIFER CODE IS NOT APPLICABLE TO THIS WELL

ATTACHMENT VI.B-B

GROUND WATER MONITORING PLAN WITH AMENDMENT LETTERS

APPENDIX A

AGREED ORDER

TEXAS WATER COMMISSION

THE STATE OF TEXAS
COUNTY OF TRAVIS
I hereby certify that this is a true
correct copy of a Texas Water Commissi
document, the original of which is filed
the permanent records of the Commission.
Given under my hand and the seal
office on SEP 8 1989

Brenda W. Foster, Chief Cle
Texas Water Commission

IN THE MATTER OF § BEFORE THE
TEXAS DEPARTMENT OF CORRECTIONS § TEXAS WATER COMMISSION
- ELLIS UNIT I; SWR NO. 71331 §

AGREED ORDER

Resolving an Enforcement Action brought against Texas Department of Corrections - Ellis Unit I for violations of the Texas Solid Waste Disposal Act, TEX. REV. CIV. STAT. ANN. art. 4477-7 (Vernon Supp. 1988), the Texas Water Code, TEX. WATER CODE ANN. Chapter 26 (Vernon Supp. 1988) and the Rules of the Texas Water Commission; Assessing Administrative Penalties and Requiring Certain Actions of Texas Department of Corrections - Ellis Unit I.

On this 24th day of August, 1989, came on to be considered the Petition and Preliminary Report of the Executive Director of the Texas Water Commission (the "Commission" or "TWC") alleging violations of the Texas Solid Waste Disposal Act, TEX. REV. CIV. STAT. ANN. art. 4477-7 (Vernon Supp. 1988), the Texas Water Code, TEX. WATER CODE ANN. Chapter 26 (Vernon Supp. 1988) and the Texas Water Commission rules pertaining to industrial solid waste management and requesting appropriate relief, including the imposition of administrative penalties. The facility made the subject of the Executive Director's Preliminary Report and Petition is Texas Department of Corrections - Ellis Unit I, located 12 miles north of Huntsville on FM 980 in Walker County, Texas.

After proper notice to Texas Department of Corrections - Ellis Unit I, ("TDCEU"), the parties appeared and announced before the Commission that they had settled all matters in controversy and requested the Commission to enter this Agreed Order.

This Agreed Order is entered solely for the purpose of resolving the disputed claims between the Commission and TDCEU and is entered upon the recommendation of the Commission and TDCEU. In consenting to the entry of this Agreed Order, neither party admits the allegations made by the other party. The Commission and TDCEU agree that this Agreed Order shall not be construed as evidence of any of the violations alleged herein, either directly or indirectly; nor shall this Agreed Order be used in any way, either directly or indirectly, for any purpose, however and whenever arising, in any judicial or administrative proceeding except for a proceeding brought by either party to this Agreed Order to enforce the terms and conditions specified herein.

Findings of Fact

1. Texas Department of Corrections - Ellis Unit I, ("TDCEU"), is a state prison facility which is located 12 miles north of the city of Huntsville on FM 980 in Walker County, Texas and has engaged in industrial operations which include shoe manufacturing, furniture manufacturing, and an inactive wood treatment facility. Municipal operations include a vehicle paint shop, body and mechanical repair shop, and grounds and maintenance shop.

2. TDCEU has neither interim status nor a Texas Water Commission ("TWC") permit authorizing TDCEU to store, treat or dispose of hazardous waste.

3. Soil borings, taken during an inspection conducted by East Texas Testing Laboratory for TDC, indicate that the soil and groundwater surrounding the inactive wood treatment facility have been contaminated by pentachlorophenol.

4. During inspections conducted on November 2 and 5, 1987, a Commission representative from the Deer Park office observed that one drum in the hazardous waste container storage area, located near the "Old Syrup Building", was leaking and that many other drums had deteriorated.

5. During inspections conducted on November 2 and 5, 1987, and December 7, 1987, TDC representatives stated that waste from the TDC Wynne Unit license plate manufacturing operations had been transferred in 55-gallon drums to the TDCEU where it had been mixed with sawdust and formed into solidified "briquettes". TDC representatives further stated that the "briquettes" had then been transferred to either the TDCEU landfill or to "pits" and subsequently burned. The waste ash which results from the burning of the TDC Wynne Unit waste had been disposed of in the on-site landfill according to TDC representatives.

6. During an inspection conducted on November 2 and 5, 1987, Commission representatives from the Deer Park Office observed two locations near the TDCEU lumber barn described as "open pits" in which the "Stripper Waste" from the TDC Wynne Unit was burned.

7. The Executive Director has issued a Preliminary Report concerning violations by TDCEU of the Act, the Code and Commission rules pursuant to 31 TAC §337.36. Timely notice of the issuance of the Preliminary Report was provided to TDCEU in accordance with 31 TAC §337.37.

Conclusions of Law

1. TDCEU has managed industrial solid and municipal hazardous waste at the facility located 12 miles north of Huntsville on FM 980 in Walker, Texas and is therefore subject to the jurisdiction of the Texas Water Commission pursuant to the Texas Solid Waste Disposal Act, TEX. REV. CIV. STAT. ANN. Art. 4477-7 (Vernon Supp. 1988), the Texas Water Code, TEX. WATER CODE ANN. Chapter 26 (Vernon Supp. 1988) and the rules of the Commission.

2. As a result of TDCEU's industrial operations, TDCEU is a generator and transporter of hazardous industrial and municipal solid waste.

3. TDCEU has handled and disposed of industrial solid waste in such a manner so as to cause a discharge or an imminent threat of discharge into or adjacent to the waters of the State in violation of §26.121 of the Texas Water Code and 31 Texas Administrative Code ("TAC") §335.4.

4. TDCEU has violated 31 TAC §§335.2 and 335.43 because it has not obtained authorization from the TWC for on-site disposal of hazardous waste.

5. TDCEU has violated 31 TAC §335.112(a)(15), which incorporates federal regulations set out at 40 Code of Federal Regulations ("CFR") §265.382, because TDCEU has treated hazardous waste on-site by open burning.

6. The Commission has the authority to assess administrative penalties for violations of the Act and Commission rules pursuant to §8b of the Act and §26.136 of the Code.

7. The Commission has the authority to issue enforcement orders directing compliance with the Act, the Code and Commission rules pursuant to §8c of the Act, §26.019 of the Code and 31 TAC §337.1.

8. An administrative penalty in the amount of Eight Thousand Dollars ($8,000.00) is justified by the facts recited herein, considered in light of the factors stipulated in §8b of the Act and §26.136 of the Code.

9. Pursuant to §8b(n) of the Act and §26.136(n) of the Code, the Commission may compromise, modify, or remit, with or without condition, any civil penalty imposed under §8b of the Act and §26.136 of the Code.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS WATER COMMISSION that Texas Department of Corrections - Ellis Unit I shall be assessed an administrative penalty of Eight Thousand Dollars,

($8,000.00) for violations of the Texas Solid Waste Disposal Act, the Texas Water Code and the rules of the Texas Water Commission. This entire penalty amount shall be deferred and waived by the Commission provided that TDCEU fully and satisfactorily complies with all of the technical requirements enumerated herein in accordance with the schedules specified by this Order or approved by the Executive Director pursuant to this Order. The disposition of this administrative fine resolves only those matters raised by the Executive Director's Preliminary Report, and the Commission shall not be constrained in any manner from considering any administrative fines for violations of the Texas Water Code, the Texas Solid Waste Disposal Act or the regulations or orders of the Texas Water Commission occurring after the date this Order is signed or which are not raised in the Executive Director's Preliminary Report. All checks rendered to pay penalties imposed by this Order shall be made out to "The State of Texas - General Revenue Fund." The deferred penalty shall be paid within thirty (30) days of the date the Remedial Action Plan should have been completed if TDCEU has failed to fully and satisfactorily comply with the technical requirements enumerated herein, and mailed to the Chief Fiscal Officer, Texas Water Commission, P. O. Box 13087, Capitol Station, Austin, Texas 78711-3087, with the notation, "Re: Texas Department of Corrections - Ellis Unit I, Enforcement Order".

IT IS FURTHER ORDERED BY THE TEXAS WATER COMMISSION that Texas Department of Corrections - Ellis Unit I shall undertake certain actions as follows:

1. Immediately upon issuance of this Order, the TDCEU shall cease all open burning of hazardous waste, in accordance with 31 TAC 335.112 (a) (15)/40 CFR 265.382, and shall cease all unauthorized disposal of hazardous waste on-site.

2. Within 90 days of the signing of this Order, the TDCEU shall develop a groundwater monitoring plan and install a groundwater monitoring system, in accordance with the requirements of 31 TAC §335.116, which is capable of immediately detecting the release of hazardous waste constituents in the uppermost aquifer beneath the landfill.

3. Within 60 days of the signing of this Order, the TDCEU shall develop and submit to the TWC a written waste analysis plan pursuant to 31 TAC 335.112 (a) (1)/40 CFR §265.13, a written contingency plan, pursuant to 31 TAC §335.112 (a) (3)/40 CFR Subpart D, and a written personnel training plan pursuant to 31 TAC §335.112 (a) (1)/40 CFR §265.16, or meet the provisions specified in 31 TAC 335.69(f) to qualify as a Small Quantity Generator of hazardous waste. In addition, TDCEU shall comply with the requirements for preparedness and prevention pursuant to 31 TAC §335.112 (a) (2)/40 CFR Subpart C no later than 60 days from issuance of this Order. TDCEU shall implement the

personnel training program no later than 60 days from issuance of this Order.

4. Within 60 days of the signing of this Order, TDCEU shall submit to the TWC Executive Director, for review, possible modification, and approval, closure and post-closure plans for the hazardous waste landfill. The plans shall include a schedule for implementation and completion of activities and shall comply with all requirements for closure of hazardous waste facilities as specified in 31 TAC §335.112(a)(6)/40 CFR Subpart G.

5. Within 180 days of the effective date of this Order, the TDCEU shall submit a complete permit application for a Hazardous Waste Post Closure Care Permit which is prepared in accordance with the requirements of TAC Chapter 31 Subchapter C - Application for Permit (§§ 305.41-305.53). The Post Closure Permit Application shall be submitted to the TWC Executive Director for review for administrative and technical completeness.

6. Within 30 days of the signing of this Order, TDCEU shall provide proof of deed recordation of the hazardous waste landfill and the area around the wood treatment facility in accordance with 31 TAC §335.5.

7. Within 30 days of the signing of this Order, TDCEU shall transfer all wastes from leaking, corroded containers to containers which are in good condition in accordance with 31 TAC §335.112 (a) (8)/40 CFR §265.171. TDCEU shall ensure that wastes are managed in containers which are not leaking and otherwise poorly maintained.

8. Within 90 days of the signing of this Order, TDCEU shall submit to the Executive Director, for review, possible modification and approval, a Groundwater Quality Assessment Plan to determine the concentration, rate, and extent (vertical and horizontal) of groundwater contamination at the wood treatment facility. The plan must include a time schedule for implementation and completion of activities, and, at a minimum, the following information:

   a. The number, location, and depths of wells;

   b. A sampling plan which, at a minimum, specifies in detail the following:

      1. Well evacuation procedures including volume to be evacuated prior to sampling and handling procedures for purged well water;

2. Sample withdrawal techniques and equipment. All sampling equipment shall be constructed of inert materials. If bailers are used, teflon-coated wire, single strand stainless steel wire, or monifilament shall be used to raise and lower the bailer. Bottom valve bailers or positive gas displacement bladder pumps shall be used to withdraw samples.

   The sampling protocol will include field measurement of pH, conductivity, and temperature for each sample;

3. Sample handling and preservation techniques including a provision for field-filtration of samples as appropriate;

4. Procedures for decontaminating sampling equipment between sampling events;

5. Procedures for measuring groundwater elevations at each sampling;

6. Chain of custody procedures to be used for all phases of sample management;

7. Laboratory analytical techniques, quality assurance and quality control procedures and detection levels;

8. The sampling and analysis plan should be based on the recommendations of the "Test Methods for Evaluating Solid Waste - Physical and Chemical Methods", EPA - SW-846.

   A copy of the plan should be kept on site, available for inspection, and shall be complied with by TDCEU for all sampling done at the facility. The plan may be modified with written approval by the Executive Director. The plan will include the reporting format for analytical results. Results will be reported as the laboratory reports the data to TDCEU and detection limits and quality assurance from the laboratory will also be reported;

c. Evaluation procedures, which shall include any use of previously gathered groundwater quality information;

d. Provisions for determination of the groundwater elevations, flow direction and gradient; and

e. Provisions to determine the vertical and lateral extent of contamination.

9. Within 60 days of completion of the Groundwater Quality Assessment, TDCEU shall submit a written Groundwater Quality Assessment Report, to the Executive Director for review, which shall include, at a minimum, the following information:

   a. Field data, including location of sample collection, analyses, and evaluation of data from which the hydraulic conductivity of the producing aquifer was determined;

   b. Lithologic logs, construction details, and description of drilling and construction procedures for the wells installed during the assessment;

   c. Copies of the original laboratory analytical data should be submitted and should include detection limits and the detection method used for analyses;

   d. A to-scale map illustrating the vertical and lateral extent of soil and groundwater contamination;

   e. Results of the hydrogeologic investigation and conclusions based on the evaluation of these results (ie - concentration, rate, and extent of groundwater contamination); and

   f. A proposal, subject to TWC review, possible modification, and/or approval, for any continued monitoring including a schedule, based on the results of the assessment, for implementation and completion of activities.

10. Within 90 days of completion of the Groundwater Quality Assessment, TDCEU must submit a Remedial Action Plan to the Executive Director for review, modification, and/or approval which shall be based on the results of the assessment, and which shall include a schedule for implementation and completion of activities. The plan shall include, at a minimum:

   a. A description of procedures for removal, containment and/or treatment of contaminated soils and groundwater;

   b. For wastes which must be shipped off-site, a description of methods for packaging and shipment, in accordance with the applicable DOT requirements, and the ultimate disposition. Class I wastes shipped off-site must be accompanied by a uniform hazardous waste shipping manifest;

   c. The identity of any transporters and the authorized disposal facilities;

d. An estimate of the volume of any contaminated soil and groundwater which must be removed, procedures for conducting hazardous waste determinations, and a description of procedures for having wastes classified;

e. A verification sampling plan to confirm that waste constituents have been restored to background levels. The plan must indicate sample collection and analytical methods from "Test Methods for Evaluating Solid Waste - Physical and Chemical Methods," EPA-SW-846;

f. A description of actions which will be taken to restore excavated areas to their original grade;

g. For areas in which waste constituents cannot be restored to background levels, a proposal for continued monitoring, subject to TWC review, modification, and/or approval, which includes a schedule for implementation and completion of activities; and

h. Upon completion of remedial activities, certification by a Texas-registered professional engineer that all work has been carried out in accordance with the plan.

11. Within 30 days of the signing of this Order, TDCEU shall notify the Executive Director in writing of all industrial solid wastes and hazardous municipal wastes generated on-site and all associated on-site waste management facilities in accordance with 31 TAC §335.6. This notification shall include, but not be limited to, waste oil, waste solvent, pesticide waste, waste storage tanks, waste storage containers, and the on-site landfill.

12. Immediately upon the signing of this Order, TDCEU shall begin maintaining records of industrial solid wastes generated, stored, processed, and disposed on-site or shipped off-site, and begin submitting all required annual reports which shall be made available for inspection in accordance with the requirements of 31 TAC §335.9.

13. Within 60 days of the signing of this Order, TDCEU shall conduct all required hazardous waste determinations, in accordance with 31 TAC §335.62, on all wastes for which this has not already been done, including but not limited to, unknown wastes stored in drums at the drum storage area, and wastes stored in the pesticide waste storage tank.

14. Within 90 days of the signing of this Order, TDC shall develop an intra-agency program for coordinating industrial solid waste and hazardous municipal waste management in order to

achieve compliance with state and federal solid waste regulations.

15. The TDCEU shall notify the TWC Southeast Region Office, in Deer Park, at least 5 working days in advance of any sampling or excavation events associated with these required actions.

16. If TDCEU fails to comply with any of the technical requirements present in this Agreed Order within the schedules set out herein and such failure is caused primarily by events beyond the reasonable control of TDCEU such failure shall not be construed as a violation of this Agreed Order. When events are occurring or have occurred which may delay implementation of the technical requirements enumerated herein, TDCEU shall take all reasonable measures to mitigate and/or minimize such delay and shall notify the Executive Director in writing within seven (7) State working days of becoming aware of the delaying event. TDCEU shall describe the reasons for and expected duration of the delay and shall provide a revised timetable which shall be implemented upon its approval by the Executive Director. The burden of proving that an event was beyond the reasonable control of TDCEU shall remain with TDCEU.

17. All documents, submittals, reports, plans and other documentation required by this Order shall be submitted to:

Section Chief
Hazardous and Solid Waste Division
Texas Water Commission
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

and a copy shall be sent at the same time to:

District Manager
TWC District Southeast Region - Deer Park Office
4301 Center Street
Deer Park, Texas 77536-6299

18. The Chief Clerk shall provide a copy of this Order to each of the parties.

Signed this 31st day of August, 1989

TEXAS WATER COMMISSION

B. J. Wynne, III, Chairman

(Seal)

Brenda W. Foster

Brenda W. Foster, Chief Clerk

I, the undersigned, have read and understand the attached Agreed Order. I understand that it is an Agreed Order which does not constitu an admission by either party of the facts alleged in the enforcement action giving rise to this Agreed Order, but does constitute a waiver o the right to appeal. I am authorized to agree to the attached Agreed Order on behalf of the entity indicated below my signature, and do here agree to the terms and conditions specified therein.

Bobbie Barker Date: 8-25-89

for Allen P. Beinke
Executive Director

Date: 8/24/89

Authorized Representative
Texas Department of Corrections - Ellis Unit I

APPENDIX B

PRELIMINARY SUBSURFACE AND GEOTECHNICAL INVESTIGATION

Report Of

GEOTECHNICAL INVESTIGATION

AND

PRELIMINARY GROUNDWATER QUALITY ASSESSMENT PLAN

ELLIS I LANDFILL
TEXAS DEPARTMENT OF CRIMINAL JUSTICE-INSTITUTIONAL DIV.
WALKER COUNTY, TEXAS

Report For

TEXAS DEPARTMENT OF CRIMINAL JUSTICE-INSTITUTIONAL DIV.
HUNTSVILLE, TEXAS

PICKETT-JACOBS CONSULTANTS, INC.
Geotechnical and Materials Engineering
Lufkin, Tyler and Huntsville, Texas

PJ

PICKETT-JACOBS CONSULTANTS, INC.
Geotechnical and Materials Engineering

Huntsville Office
1790 Highway 19
Huntsville, Texas 77340
(409) 295-3899

Lufkin (Home) Office
1609 South Chestnut, No. 107
Lufkin, Texas 75901
(409) 634-5044

Tyler Office
1820 Shiloh Road, No. 1405
Tyler, Texas 75703
(214) 581-5596

November 14, 1990
Tyler, Texas

Mr. Leroy J. Bailey, P.E.
Texas Department of Criminal Justice
(Institutional Division)
P.O. Box 99
Huntsville, Texas 77342-0099

RE: Geotechnical Investigation
and Preliminary Groundwater
Quality Assessment Plan
TDCJ-ID Ellis I Unit
Walker County, Texas
PJC Job No. 147-90

Dear Mr. Bailey:

Attached is our report presenting results of the geotechnical investigation that we performed for the referenced project. The Preliminary Groundwater Quality Assessment Plan is included as part of this report. The Executive Summary which summarizes highlights of this investigation is presented on Page iii.

This report is ready for submittal to the Texas Water Commission. Please let us know if any further information is needed at this time. We appreciate the opportunity to serve you.

Sincerely,

PICKETT-JACOBS CONSULTANTS, INC.

Daniel E. Pickett

Daniel E. Pickett, P.E.
President

William V. Jacobs

William V. Jacobs, P.E.
Vice President

DEP:pd

Dist.: (5) Texas Department of Criminal Justice-Institutional Div.

GEOTECHNICAL INVESTIGATION AND
PRELIMINARY GROUNDWATER QUALITY ASSESSMENT PLAN
ELLIS I LANDFILL
TEXAS DEPARTMENT OF CRIMINAL JUSTICE (INSTITUTIONAL DIV.)
WALKER COUNTY, TEXAS

REPORT FOR

TEXAS DEPARTMENT OF CRIMINAL JUSTICE (INSTITUTIONAL DIV.)
HUNTSVILLE, TEXAS

BY

PICKETT-JACOBS CONSULTANTS, INC.
LUFKIN, TEXAS

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The following report was prepared by Pickett-Jacobs Consultants, Inc. for the Texas Department of Criminal Justice (Institutional Division). This investigation was performed in response to a directive by the Texas Water Commission.

The objective of this investigation was to prepare a Preliminary Groundwater Quality Assessment Plan for the Ellis I Landfill. After approval of this plan by the TWC, recommendations contained therein will be implemented in order to gather information necessary for preparation of a Groundwater Quality Assessment Report.

The first nine sections of the attached report present an investigation to determine soil stratigraphy and preliminary groundwater information at the landfill. As discussed more fully in this report:

* Eight soil borings were drilled. Generalized soil stratigraphy consists of 6 to 12 feet of primarily clayey soils which are underlain by sands to depths of 18 to 33 feet where a thick stratum of clay exists.

* Five piezometers of "monitor well quality" were installed and read. Groundwater is in the sand layer, with the piezometric surface at approximately elevation 129.5 (depths of 7 to 12 feet below ground surface). The piezometric surface has a slight down gradient toward the east.

Using information from this geotechnical/groundwater investigation, a detailed Preliminary Groundwater Quality Assessment Plan was prepared and included in the latter sections of this report. As discussed more fully in that plan which begins on Page 24:

- The five existing monitor wells will be used as the initial groundwater monitoring network. Water levels in all monitor wells will be read over a three-month period.
- An initial sampling event will consist of obtaining groundwater samples from monitor wells. Analytical tests will be performed on these samples in the laboratory.
- The final Groundwater Quality Assessment Report will be prepared for the work authorized by TDCJ-ID Amendment No. 8. A proposed schedule of implementation is included. It may be necessary that additional monitor wells be installed at some time in the future.

INTRODUCTION AND OBJECTIVES

Pickett-Jacobs Consultants, Inc. was retained by the Texas Department of Criminal Justice (Institutional Division), herein referred to as TDCJ-ID, to prepare and submit for approval to the Texas Water Commission (TWC) a Groundwater Quality Assessment Plan for the Ellis I Landfill in Walker County, Texas. This document describes the preliminary plan developed for the Ellis I Landfill, as well as the geotechnical investigation used to obtain information for development of that plan.

Authorization

This study was authorized by Amendment No. 8 to the Pickett-Jacobs Consultants Agreement for Laboratory Services dated January 15, 1988. The noted amendment was dated April 9, 1990, by TDCJ-ID, with notice of approval being given to us by letter dated April 18, 1990. The work was performed in accordance with the terms of Amendment No. 8 and our proposal by letter dated January 17, 1990, to Mr. Leroy J. Bailey, P.E. of the TDCJ-ID. This report is submitted in partial fulfillment of Amendment No. 8 requirements.

Objectives

The overall objective of services authorized by Amendment No. 8 was to prepare a Final Groundwater Quality Assessment Report for this landfill. The general objective of this investigation reported herein was to obtain soil stratigraphy and groundwater information at the landfill, and develop a Preliminary Groundwater Quality Assessment Plan to be submitted to the Texas Water Commission (TWC). Background details of this project are presented subsequently in this report. The specific scope of investigative services authorized by this phase of the investigation included the following:

1. Drilling and sampling of soil borings to depths of about 40 feet;
2. Testing of soil samples to determine gradation, Atterberg limits, coefficient of permeability, and Unified Soil Classification;
3. Installation of piezometers/monitor wells, and subsequent water level readings to determine location of the piezometric surface; and,
4. Submittal of a Preliminary Groundwater Quality Assessment Plan presenting results of this investigation, and recommendations for subsequent work needed to meet TWC requirements.

Information from this phase of the investigation will be used by the Texas Water Commission in their review of the applicable commission orders for this landfill. Soil samples obtained during field studies and not consumed by laboratory testing procedures will be retained in our laboratory free of charge for a period of six months. Requests for additional storage time should be directed to our office.

BACKGROUND

Our understanding of the project background, as presented in this section, is based upon information furnished to us by TDCJ-ID. TDCJ-ID operated a solid waste disposal site from 1964 until 1988 to serve the Ellis I and Wynne Units. This 7.5-acre site, located on the TDCJ-ID Ellis I Unit property in northern Walker County, is called the Ellis I Landfill.

TDCJ-ID had previously submitted to the Texas Department of Health (TDH) Part A of the municipal solid waste disposal permit application for operation of this landfill. The landfill was closed in 1988 prior to submittal of Part B of the application and before issuance of a permit by TDH in response to the request by TDCJ-ID. The trench method of waste disposal was used. Excavated depths of trenches at this landfill are known to be less than 10 feet below original ground surface.

In November and December 1987, the TWC conducted compliance evaluation and sampling inspections in connection with TDCJ-ID's operation of the Ellis I landfill. It was determined by the TWC that hazardous waste lacquer stripper from TDCJ-ID operations was burned at the landfill, and the hazardous waste residue ash was disposed of in the trenches. Landfill operations were judged to be in violation of applicable TWC rules.

The TWC prepared a "Notice of Executive Director's Preliminary Report and Petition for a Texas Water Commission Order Assessing Administrative Penalties and Requiring Certain Actions of Texas Department of Corrections-Ellis Unit I" dated May 25, 1989. That document detailed waste management activities and noncompliances at this landfill, and contained technical recommendations regarding a groundwater monitoring plan for the landfill.

The TDCJ-ID contacted our firm in November 1989 and requested a proposal for work needed to prepare the groundwater monitoring plan, as required by the TWC. Since no geotechnical or groundwater information was available for this site, we prepared a proposal (dated December 1, 1989) suggesting a phased investigation be implemented to comply with the TWC requirements. Our detailed recommendations for a Phase I investigation to determine soil stratigraphy and preliminary groundwater information were discussed in the noted proposal.

The TDCJ-ID then submitted that proposal for obtaining preliminary geotechnical/groundwater information to TWC for their review. TWC interpreted that proposal as actually being the groundwater monitoring plan, rather than only as an investigation to get information needed to prepare the required plan. Therefore, TWC sent TDCJ-ID a letter dated January 2, 1990, outlining specific technical requirements for preparation of the plan. In response to the TWC letter, we prepared our proposal dated January 17, 1990, under which this investigation is being performed.

The first two tasks authorized by Amendment No. 8 were to review available information, drill and sample soil borings to determine soil stratigraphy, and install piezometers to determine groundwater conditions. The third task was to prepare a Preliminary Groundwater Quality Assessment Plan for submittal to TWC, with recommendations being based upon findings from the first two tasks. Our report submitted herein fulfills requirements of those first three tasks.

After approval of the Preliminary Groundwater Quality Assessment Plan by TWC, water levels will be monitored and groundwater samples will be tested in order to prepare the Final Groundwater Quality Assessment Report for this landfill. These latter tasks will also be performed under Amendment 8. Details of the field investigation and geotechnical laboratory testing program follow. The findings, evaluation, and conclusions are presented subsequently. The proposed Preliminary Groundwater Quality Assessment Plan begins on Page 24 of this report.

FIELD INVESTIGATION

Field investigative work included drilling and sampling of eight (8) soil borings, installation and reading of five (5) piezometers/monitor wells, and survey of all boring and piezometer/monitor well locations. Southwestern Laboratories, Inc., Austin, Texas, served as our hydrogeological consultant for this project. Survey services were provided by TDCJ-ID personnel. The field investigative work is discussed separately in subsequent sections of this report.

Soil Borings

The objective of the soil borings was to obtain stratigraphic information around the perimeter of the site. Subsurface conditions were investigated by eight soil borings drilled during the time period of June 26-28, 1990. These are designated B-1 through B-8 for this project. Drilling was performed by Younger Drilling Company, Humble, Texas under our supervision. Boring locations were selected by our personnel, based upon landfill boundary information furnished by TDCJ-ID. Depths of borings established in the field by our personnel were selected to penetrate at least five feet into the clay layer found beneath the sand strata. After completion of drilling operations, boring locations were surveyed by TDCJ-ID. A Plan of Borings prepared from that survey and showing boring locations in relation to existing site features is provided in Appendix B.

A field log of each boring was prepared as drilling and sampling of soils progressed. Final Logs of Borings were prepared using field logs, test results, and inspection of soil samples in our laboratory. These final logs are included in Appendix C. Descriptive terms and symbols used on the logs are in accordance with the Unified Soil Classification System (ASTM D 2487). A reference key for this classification system is provided on the final page of Appendix D.

A truck-mounted Failing Model 36 rotary drill rig utilizing wash drilling procedures was used to advance the borings. Borings were drilled with a 4.5-inch diameter fishtail drag bit using water as a drilling fluid. This water was obtained from the Ellis I Unit potable water system. All downhole drilling tools and sampling equipment were decontaminated with high temperature/high pressure water between borings. The dry auger procedure was used to drill the upper 13 feet of Boring No. 4.

Soil borings were grouted from the bottom of boring to existing ground surface after drilling and sampling was completed. Grout was made from a 12:1 ratio of portland cement and bentonite powder mixed with water. A pump on the drilling rig and appropriate piping were used to place the grout under pressure from the bottom of the borehole upward.

Samples of cohesive soils were obtained by a three-inch O.D. by 24-inch long thin-walled Shelby tube sampler in accordance with ASTM D 1587 procedures. Using the drilling rig's hydraulic pressure, the sampler was pushed smoothly into the bottom of the borehole after removal of the drill bit. These samples were extruded in the field, examined, and their consistencies were measured by a calibrated hand penetrometer. These values, measured in tons per square foot, are recorded on the boring logs. Selected soil samples were monitored for volatile organic compounds using a photoionization detector (PID). No significant PID readings were detected. The samples were then logged, sealed to maintain in situ conditions, and packaged for delivery to our laboratory.

Cohesive soils too hard to sample with the Shelby tube and cohesionless soils were sampled by a 1 3/8-inch I.D. by 24-inch long split-spoon sampler driven into the bottom of the borehole in accordance with ASTM D 1586 procedures. In conjunction with this sampling technique, the Standard Penetration Test was conducted by recording the N-value, which is the number of blows required for a 140-pound weight falling 30 inches to drive the split-spoon sampler one foot into the ground. For very dense or hard strata, the number of blows was limited to a maximum of 50 blows within a six-inch increment. Where possible, the sampler was "seated" six inches before the N-value was determined. The N-values obtained from these tests are listed on the boring logs. The disturbed soil samples were removed from the sampler, examined, logged, and packaged for delivery to our laboratory. The hand penetrometer was also used to test these samples, if appropriate for the type soils being sampled.

Seepage observations were made while drilling Boring No. 4. This information is listed on the boring log. No effort was made to read water levels in the remaining borings since they were drilled with water.

Piezometer/Monitor Well Installation

The original objectives of piezometer installation were to determine the depth, direction of flow, and hydraulic gradient of groundwater at this site. During planning for this project, a cost analysis indicated economy for TDCJ-ID if piezometers of "monitor well quality" were installed and initially used for water level readings, then subsequently used to obtain samples of groundwater for testing. Therefore, the piezometers installed during this phase of the work are of monitor well quality. These initial piezometers/monitor wells will be supplemented by any additional monitor wells that may be required at a later date. For brevity in this report, the piezometer/monitor well installations are referred to herein as piezometers.

Five (5) piezometers were installed during the time period of July 2 and 3, 1990. These are designated P-1 through P-5 at various places in this report. Piezometer locations and screen depths were selected by our personnel as drilling and sampling of soil borings proceeded in an effort to achieve the noted objectives. At the start of this field work, information about soil stratigraphy or groundwater at this site was not available.

Piezometers were installed at locations approximately 200 to 400 feet apart around the perimeter of the site, as shown on the Plan of Borings. One of these locations was selected to be near the east corner of the site because it was initially suspected that groundwater might be flowing in an easterly direction. Piezometers for this project were installed in borings separate from those used for soil sampling.

Screen depths for piezometers were selected in the field by our personnel. These were based upon the soil strata encountered during sampling in the soil borings, and upon water data obtained from B-4 drilled with the dry auger. Information on piezometer installation was recorded as this work progressed. Logs of Piezometers are included in Appendix C.

A Mobile B-57 drill rig using 6.6-inch I.D. hollow stem augers was used to install piezometers. These piezometers were constructed from threaded 4-inch diameter Schedule 40 PVC casing with flush joints. Screen was 0.010-inch width machine slot type. This pipe screen is manufactured only for piezometer and monitor well construction by Hughes-Beard Pipe, Inc., Houston, Texas, and is wrapped in protective plastic covers for shipment to the project site. Two piezometers (P-3 and P-4) were installed with 15 feet of screen, P-1 had 20 feet of screen, and two piezometers (P-2 and P-5) were installed with 25 feet of screen. A clean 20/40 grade silica sand purchased from Component Sales and Service, Inc., Houston, Texas, was used to sand-pack the piezometer screens. Since these were installed in sand soils below the water table, some of the piezometer sand pack consisted of natural formation collapse against the screen as the auger was withdrawn.

After determination of the screen depth for each piezometer, the casing and screen with a bottom cap were lowered through the interior of the hollow stem auger. As the auger was slowly withdrawn from the borehole, a sand filter pack was installed in the screened interval to allow hydraulic communication with the aquifer and to stabilize the casing. The sand filter pack was generally placed to approximately two feet above the top of the screen.

After placement of the sand pack, bentonite pellets (purchased from Hughes-Beard) were poured slowly into the annulus to form an 18-inch high seal above the sand pack and isolate it from the overlying annular material. Any remaining annulus above the bentonite seal was filled with grout made from a 12:1 ratio of portland cement and bentonite powder mixed with water. This grout was placed under pressure from the bentonite seal upward using the drilling rig pump and piping.

Each piezometer was allowed to stabilize overnight before completion with a square concrete pad constructed at the ground surface. A locking steel cover, embedded in the concrete pad, was installed over each piezometer. The PVC casing projected about three feet above ground surface inside the steel cover. A water-tight cap was placed at the top of each piezometer casing to prevent entry of foreign materials.

Each piezometer was developed to remove any water and fine grained soil that may have entered during installation in order to insure good hydraulic connection between the piezometer and the aquifer. The piezometer development method used for this project was bailing with a 3-inch diameter by 3-foot long PVC bailer manufactured by Brainard-Kilman, Inc., Houston, Texas. Well development equipment was decontaminated between piezometer locations by washing with detergent and triple-rinsing with distilled water. The volume of water removed from each piezometer was measured and recorded on Piezometer Development Information sheets. Copies of these are included in Appendix C. At least 10 well volumes of water were removed from each piezometer during development. Sewer type odors were detected during development of Piezometers P-2 through P-5.

Water level readings in piezometers were made using a Model 51453 Water Level Indicator manufactured by Slope Indicator Company, Seattle, Washington. This is a self-contained transistorized instrument for determining groundwater levels in piezometers, monitor wells, and boreholes. This instrument was also washed and rinsed between piezometer water level readings. Water level readings are listed in Appendix C.

Location Survey

Surveying services to locate borings and piezometers, and preparation of a site plan, were provided by TDCJ-ID personnel. Mr. Bud Powell of the Wynne Unit, Huntsville, Texas, supervised surveying services. Horizontal locations of borings and piezometers are based on a site co-ordinate grid system established for this project. The southwest corner of the landfill fence was assumed to have co-ordinates 10,000 North and 10,000 East. Elevations are referenced to Mean Sea Level datum. The top of pipe at the northwest end of a reinforced concrete pipe culvert at the landfill entrance was used as a benchmark. The elevation of 140.98 used for this pipe had been established previously from a U.S.G.S. benchmark located in the area.

Elevation of ground surface at each boring and piezometer was determined. In addition, elevation of the top rim of piezometer casing inside the locking steel covers was determined. Elevations and horizontal locations of soil borings and piezometers are shown on the Plan of Borings which we prepared from the TDCJ-ID information. Elevations and locations are also listed in Appendix C.

LABORATORY TESTING

Upon delivery to our laboratory, all soil samples were visually examined by a geotechnical engineer. Representative samples were tested for determination of engineering properties of soils encountered at the site.

Field classification of various strata was verified by determination of Atterberg limits (ASTM D 4318) and percentage of fines passing the No. 200 sieve (ASTM D 1140). In situ moisture content values were determined by ASTM D 2216 procedures. Results of these tests are presented on the Summary of Laboratory Test Data included in Appendix D. Atterberg limits are also listed on the boring logs.

Particle-size analyses of representative specimens were performed to determine the grain size distribution of sand type soils. This information is tabulated as Summary of Sieve Analysis Data in Appendix D.

Permeability characteristics of soils encountered at this site were determined by falling head permeability tests performed on undisturbed soil specimens in accordance with Corps of Engineers Manual EM1110-2-1906 procedures. These tests were performed at vertical pressures approximating that of the existing overburden at each respective sample depth. Dry unit weight and moisture content were determined as part of the permeability tests. Results of permeability tests with other pertinent data are presented on Permeability Test Report No. 9-1 included in Appendix D. Permeability information is also listed on the Summary of Laboratory Test Data.

SITE FEATURES

This landfill is approximately 7.5 acres in size, and is located within TDCJ-ID property at the Ellis I Unit about four miles northwest of the Riverside community in northern Walker County, Texas. The site is within the Trinity River floodplain area approximately 10,000 feet northeast of the Ellis I fenced compound. A barbed wire fence exists around the perimeter of the site. Surrounding land is used primarily for pasture and agricultural purposes.

The Trinity River is located some 5,000 feet to the northeast and southeast of this site. The flood plain in which this landfill is located has been leveed off by TDCJ-ID. The site is about 4,000 feet southeast of an abandoned wood treating plant which was the subject of a prior soil and groundwater contamination investigation. A crushed aggregate road exists outside the southwest boundary of the landfill.

Solid waste material was disposed of in trenches known to be less than 10 feet deep. Mr. Ron Driscoll, TDCJ-ID landfill operator for the latter years of use, indicated that trenches were excavated into the "black gumbo clay". Soil cover over the landfill raised ground surface grades a few feet above original surface. This landfill has been closed since 1988.

Existing ground surface (soil cover) at the landfill generally slopes in both a northeast and southwest direction from the center of the site. The maximum difference in elevation within the fenced area is three to four feet. Ground surface northeast of the perimeter fence is somewhat lower. Overall regional slope outside the landfill appears to be in a southeasterly direction toward the Trinity River.

The site, and most of the surrounding area, has a ground cover of grass and weeds. Large oak trees exist at scattered locations outside the landfill. A small, shallow natural pond is located about 300 feet northeast of the northeast corner of the site. An excavated drainage channel is located near the southeast corner.

SITE GEOLOGY

Geologically, this landfill site is located on recent alluvium deposits which overlie older formations including the Deweyville and Beaumont. A detailed discussion of the geological and hydrogeological aspects of this site is contained in the letter report dated September 5, 1990 by Southwestern Laboratories. A copy of that report is included as Appendix A of this report.

SOIL STRATIGRAPHY AND PROPERTIES

Specific soils encountered during field exploration for this project are described in detail on the eight (8) boring logs included in Appendix C. Review of these logs indicates that a good correlation of soil layers from boring to boring was found. Generalized soil stratigraphy at this site is graphically presented on the four soil profiles included in Appendix B.

Near-surface soils were primarily layers of sandy clay (CL) , with some clay (CH), clayey sand (SC), and silty fine sand (SM). Underlying soils were thick strata of sand (SP) and silty fine sand (SM). These were in turn underlain by a thick layer of clay (CH) in which all borings were terminated. A more detailed description of soil stratigraphy follows:

Depth Below Existing Ground Surface (ft.) To Top of Stratum	To Bottom of Stratum	Stratum Description
0	6 to 12	HARD TAN, BROWN AND RED SANDY CLAY (CL). Contains clay (CH), clayey sand (SC), and silty fine sand (SM) layers at some locations. Contains joints and vertical sand seams.
6 to 12	18 to 33	FIRM GRAY AND TAN SILTY FINE SAND (SM) AND FINE TO MEDIUM SAND (SP). Contains organic laminations, thin seams of clay, occasional small gravel, and layers of coarse sand.
18 to 33	>40	HARD DARK GRAY CLAY (CH). Contains tiny sand pockets and silt laminations.

The above-noted three major strata were found in all borings drilled at this site, although the depths at which they were encountered varied somewhat.

A surface layer of organic topsoil less than one foot thick was found in some of the borings. Solid waste landfill debris was not found in any of the borings, all of which were drilled outside the reported boundaries of the landfill. In Boring No. 4, a small amount of gravel and brick debris was found mixed with the upper four feet of sandy clay soil. This probably resulted from construction of the soil cover at the landfill. Selected soil samples were monitored for volatile organic compounds using a photoionization detector. Samples did not show any measurable readings. In addition, no visual or olfactory indications of affected soil were observed during the drilling and soil sampling program.

Shallow soils which formed the sidewalls and probable bottoms of trenches were a layered system primarily of sandy clay (CL), with secondary layers of clay (CH), silty fine sand (SM), and clayey sand (SC). The distribution of type soils in these upper layers and above the thick sand layers was found to be approximately 70 percent (CL), 15 percent (SC), 8 percent (CH), and 7 percent (SM).

The color of these upper soils were various shades of tan, brown, gray, and reddish-tan. The more clay-like soils (CL and CH) contained numerous joints. In some samples, the vertical joints were filled with fine sand. These soils were generally in a hard condition.

Soils underlying those described above were thick layers of granular material described as silty fine sand (SM) and fine to medium sand (SP) with some layers of coarse sand. The color of these sands were tan and gray, and they were in a firm to dense condition. The thick strata of sand contained occasional laminations of organic material and thin seams of clay. Small silicious gravel was found as individual particles or thin seams within the sand at some locations.

The deeper clay (CH) soil layer, believed to be the Deweyville geologic formation, had a distinctive dark gray color. This stratum was in a hard condition, had a crumbly texture, and contained silt laminations, tiny pockets of fine sand, slickensides, and vertical joints. Some of these joints were almost one inch wide and were filled with clayey silt.

Laboratory test data indicate that the various classifications of soils at this site have the ranges of test values listed in the following Table I:

TABLE I
RANGE OF LABORATORY TEST VALUES
SOILS AT ELLIS I LANDFILL

Soil Description	Unified Soil Classification	Range of Test Values: Atterberg Limits (%) LL	PI	-No. 200 Sieve (%)
Medium Sand	SP	Non-Plastic		2-8
Silty Fine Sand	SM	Non-Plastic		12-42
Clayey Sand	SC	27-47	14-25	42-47
Sandy Clay	CL	23-40	7-27	54-74
Clay	CH	56-88	39-55	78-99
TDH Criteria*	--	30-50	15-25	30-50

*These ranges are the lower marginal TDH requirements.

The Texas Department of Health (TDH) criteria are listed in the table for comparative purposes. These are guidelines for evaluating soils relative to the necessity for lining landfill trenches. Soils which have test values within the noted criteria range might be suitable for landfills without lining, if laboratory permeability tests prove them to be suitable.

Sieve analysis tests indicate that the sand soils classified as (SM) are fine-grained, with most of the grain sizes being smaller than the No. 50 sieve. These sands contained varying percentages of silt size particles, as expressed by the amount passing the No. 200 sieve. The (SP) type soils were primarily fine to medium-grained sands with occasional small gravelly seams and layers of coarse sand. Sands at this site are typical of alluvial point bar deposits.

Results of permeability tests performed on representative samples of soil are listed on Report No. 9-1 included in Appendix D. Coefficients of permeability ranged from $8.84\text{x}10^{-7}$ to $8.70\text{x}10^{-9}$ centimeters per second. TDH permeability criteria listed on that report indicate the maximum permeability permitted for a three-foot thickness of soil forming the bottom and sidewalls of landfill trenches.

In general, permeability test results correlated good with Atterberg limits and amount passing the No. 200 sieve. The sample of dark gray clay (CH) from 28 to 30 feet in Boring No. 3 was slightly more permeable than expected. However, the permeability may have been affected by silt laminations in the test specimen. Data from the laboratory tests indicate that individual samples of the clay (CH) and most of the sandy clay (CL) soils at this site meet the TDH permeability criteria for landfills. Secondary structures (slickensides, joints, laminations, etc.) in the clay units may cause their mass permeabilities to be greater than individual values indicated by the laboratory test data.

GROUNDWATER CONDITIONS

Seepage observations were made while dry auger drilling Boring No. 4. This information is listed on that boring log. Water level readings made in piezometers are included in Appendix C.

Groundwater was encountered at depths ranging from about seven to 12 feet below existing ground surface. These depths correspond to a piezometric surface at approximately elevation 129.5 indicating a rather flat gradient. Further groundwater conditions are discussed in the previously noted report prepared by Southwestern Laboratories.

Information gathered to date indicates that the shallow groundwater is under unconfined conditions, with a generalized groundwater flow in an easterly direction across the site toward the Trinity River. Average gradient in the area studied is approximately $6.12x10^{-4}$ feet per foot. Water level readings in the piezometers will continue to be monitored at periodic intervals as subsequent phases of this work are performed. Any additional groundwater level readings and analyses will be submitted at the time of future reports.

EVALUATION AND CONCLUSIONS

The purpose and scope of this investigation were to obtain soil stratigraphy and groundwater information at the landfill, with this information being used to prepare a Preliminary Groundwater Quality Assessment Plan. Detailed information on strata and engineering properties of soils encountered at this site was presented previously. The upper materials that form the side walls and probable bottoms of trenches are a layered system of soils that are primarily sandy clays, but contain other soils ranging from sands to clays. Joints were found in some of these upper soils. Some of these soils meet the permeability and other engineering property requirements of TDH for unlined trenches, while some do not comply with those requirements.

Information from this investigation indicates that the permanent groundwater table is in the thick strata of sand at approximately elevation 129.5 (depths of 7 to 12 feet below ground surface). The piezometric surface has a very slight slope in an easterly direction.

It is our conclusion that the soil stratigraphy and groundwater information obtained from this investigation is an accurate representation of conditions at the Ellis I landfill. At this time, there does not appear to be any necessity for additional soil borings and piezometers to determine the generalized soil and groundwater conditions needed for preparation of a Preliminary Groundwater Quality

Assessment Plan. However, additional soil stratigraphic and groundwater information will be obtained if it becomes necessary to install any additional monitor wells.

PRELIMINARY GROUNDWATER QUALITY ASSESSMENT PLAN

This section describes the Preliminary Groundwater Quality Assessment Plan recommended for this project. The objective of this plan is to establish whether specified wastes have migrated into the groundwater at the Ellis I Landfill. If any contaminant migration is established, resultant objectives of the plan are to determine the rate and extent of migration (both vertically and horizontally), and to determine the concentration of wastes in the groundwater. Methodologies that will be used to achieve these objectives are discussed subsequently.

Initial Considerations

Regional geology and hydrogeology were detailed previously in this report. The site-specific upper geologic cross section has near-surface clayey soils to about eight feet where they are underlain by thick layers of fine to coarse alluvial sands. Clay of the Deweyville formation is below the alluvial sands. The uppermost aquifer at this site is unconfined, with the piezometric surface being in the sand layer at depths of about seven to 12 feet below ground surface. It does not appear that additional soil borings are needed to characterize the geology, nor are additional piezometers needed to characterize the hydrogeology at this site.

Monitor Wells

The five monitor wells already installed for this project have given an accurate indication of location, gradient, and direction of groundwater flow. Since installation procedures were to "monitor well quality", we recommend that these piezometers now be designated as monitor wells. Two of these wells are hydraulically upgradient, and three are hydraulically downgradient at the limit of the landfill.

These five monitor wells will be used as the initial assessment monitoring well network. Based upon hydrogeologic parameters identified at this site, this groundwater monitoring network appears adequate to detect a release of contaminants from the landfill. Therefore, these wells will provide an initial characterization of the contaminant plume, if present.

If a plume of contaminated groundwater is detected, it may be necessary to install additional monitor wells at some time in the future. Such wells might be needed to define the horizontal and vertical extent of any contaminated groundwater plume. If any contaminants are detected in any of the monitor wells, additional nested wells may need to be installed to determine the vertical extent of contaminant migration.

Aquifer Characteristics Determination

In order to determine hydraulic characteristics of the shallow aquifer, slug tests will be performed on the piezometers surrounding the landfill. The purpose of the slug test is to estimate the hydraulic conductivity (K) and transmissivity (T) of the aquifer. These properties are determined by measuring the rate of rise of the water level in a well (or piezometer) after a known volume of water is displaced from the well. Prediction of aquifer response can be made under different conditions if the hydraulic framework is correctly understood. An estimate of the groundwater flow velocity can be also be calculated.

In the slug test procedure, the static water level in a well is recorded. A pressure transducer is installed below the water level in the well and connected to a data logging device. A known volume or "slug" is completely submerged in the well and the water is allowed to equilibrate. The slug is then quickly removed and the rate of water level equilibration is recorded instantaneously on a logarithmic scale by the data logger. The data from the field test are reduced into a format of water level below static plotted on a logarithmic scale versus elapsed time, and then analyzed to develop aquifer parameters.

Groundwater Sampling and Analytical Program

Based upon available information, the initial and intermediate materials identified as potential groundwater contaminants are lacquer wastes from license plate manufacturing which are primarily (70%) methylene chloride. These wastes were mixed with sawdust, formed into briquettes, and burned, with the resulting ash disposed of at the landfill unit.

Little is known concerning the compounds possibly disposed of at the landfill. Therefore, the groundwater analytical program should include tests specified in Appendix IX-Groundwater Monitoring List per 40CFR, Part 264.

The five monitor wells will be sampled for analytical purposes. The primary objective of the groundwater sample collection procedure is to provide representative samples of groundwater within the designated aquifer. As authorized in this current study, analytical tests will be performed on the initial sample of groundwater obtained from each of the five monitor wells. This will be designated the initial sampling event. A program for subsequent sampling frequency and analytical tests will be proposed in the Final Groundwater Quality Assessment Report.

Prior to sampling, fluid levels will be measured in each well using an electronic water level indicator.

Measurements will be made from known survey points on the tops of the well casings. Purging will be performed by removing stagnant borehole water from the sand filter pack, screen, and casing. At least three well volumes of water will be removed in this purging. All purge water will be containerized on-site in 55 gallon drums. Following sample analysis, all containerized water will be properly disposed of. The samples collected for analysis will be as free from suspended solids as possible. A dedicated teflon bailer will be used to purge and sample each well. Water level measurement instruments will be decontaminated between wells to prevent cross contamination. The decontamination procedure includes in order: phosphate-free detergent wash, deionized water rinse, and air drying.

During well purging, the indicator parameters of pH, specific conductance, and temperature will be measured with standard field instrumentation. These values will be recorded on the well sampling form.

After the well water level has recovered from purging, samples will be collected using teflon bottom valve dedicated bailers lowered on monofilament line. Groundwater samples will be emptied directly from the bailer into approved sample containers with any designated preservatives. Samples will be transported to the laboratory in thermally insulated coolers with ice chilled to 4°C. A table of sampling and preservative procedures is included in Appendix E.

Each sample will be labeled to include collector's name, place of collection, date and time of collection, unique sample number, amount of sample, and type of preservation used. A chain of custody form will accompany each sample sent off site for analysis to document sample custody from the time of collection to receipt by the analytical laboratory. This record form contains the collector's sample number, signature of collector, date and time of collection, place and address of collection, sample type, signature of all persons involved in the chain of custody, and signature of person accepting the sample.

Field and Lab Quality Assurance/Quality Control

The QA/QC program is designed to ensure the reliability and validity of field and analytical laboratory data gathered as part of the groundwater monitoring program. Duplicate samples of groundwater will be collected from one well and analyzed in the laboratory for all parameters. Additionally, a routine collection and analysis of quality control (QC) blanks will be performed during each groundwater sampling event. Trip blanks will be used to determine if contamination is introduced from the sample containers.

The procedure for the trip blank is to fill one of each type of sample bottle with deionized water at the laboratory, transport it to the site, and return it to the laboratory for analysis. One trip blank will be collected and analyzed for each sampling event.

Results of the analysis from these blanks will not be used to correct the groundwater data. If contamination is found in the blanks, the source of contamination will be identified and corrective action, including resampling if necessary, will be initiated.

All analytical work in the laboratory will be performed in accordance with applicable EPA regulations. The laboratory follows strict QA/QC standards, including laboratory blanks, duplicates, and spiked samples for calibrating and maintaining analytical integrity. Analytical data reported by the laboratory include QA/QC data for each sampling event.

Reporting of Groundwater Quality Assessment Results

After completion of tasks described in the Groundwater Quality Assessment Plan, a final Groundwater Quality Assessment Report will be prepared and presented to TDCJ-ID for subsequent submittal to the TWC. All applicable reporting requirements specified in 31 TAC 335.117(b)-(d) will be met.

All background, soil stratigraphic, and hydrogeologic information discussed previously will be provided in the final assessment report. This report will include geologic cross sections, water level elevation maps, measured groundwater gradients, boring logs, and monitor well completion diagrams. A complete list of analytical data and quality control data will be presented in a format convenient for evaluation of results over the entire groundwater monitoring network.

Schedule of Implementation

The tasks described in the Preliminary Groundwater Quality Assessment Plan will be performed in separate phases, with each achieving its own objective. Each phase, and applicable work schedule is discussed below.

The field investigation, designated Phase I, will be a continuation of water level measurements in the monitor wells on a monthly basis over at least a three-month period, and interpretation of that data. This field investigation will be initiated within two weeks of receipt of TWC approval of the Preliminary Groundwater Quality Assessment Plan. Phase I of the investigation will be completed within 13 weeks after field work begins.

Phase II of this study will consist of aquifer characteristics determination, the initial groundwater sampling event, and laboratory analysis of groundwater. Samples will be collected from all monitor wells and analyzed for parameters listed previously. The initial sampling event will be conducted after Phase I is completed. This initial groundwater sampling and analytical work will require nine weeks.

The final Groundwater Quality Assessment Report will be prepared in Phase III of this project. All field and analytical data collected from previous phases will be synthesized and reported. This final report will be submitted to the TDCJ-ID within seven weeks after Phase II work is complete.

To summarize the schedule of implementation, the final Groundwater Quality Assessment Report will be submitted to TDCJ-ID within 29 weeks of approval by TWC of the Preliminary Groundwater Quality Assessment Plan.

APPENDIX A

SwL **SOUTHWESTERN LABORATORIES**

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

4150-B Freidrich Lane • P. O. Box 17366, Austin, Texas 78760 • 512/447-9081

September 6, 1990

RECEIVED
SEP 11 1990

Mr. Dan Pickett
Pickett-Jacobs Consultants, Inc.
1820 Shiloh Road, Suite 1405
Tyler, Texas 75703

Attn: Mr. Dan Pickett

Re: Ellis I Landfill
Walker County, Texas
SwL Project No. 90-ECA-283

Dear Mr. Pickett:

Please find enclosed a copy of the piezometer installation and development procedures, area geology, fluid measurements, and the groundwater contour map for inclusion in your draft report. In summary, the results of the groundwater measurements indicate a generalized groundwater flow direction to the east. Additional water level measurements will be required to satisfy TWC monitoring requirements, and to verify the groundwater gradient.

Should you have any questions concerning this inclusion please do not hesitate to call. SwL appreciates the opportunity to work with Pickett-Jacobs Consultants on this project and looks forward to working with you in the future.

Sincerely,

SOUTHWESTERN LABORATORIES, INC.

Russell C. Ford
Project Hydrogeologist

Michael H. Edgar

Michael H. Edgar
Vice President

RF/ss

HOUSTON • DALLAS • AUSTIN • BEAUMONT • CONROE • GALVESTON COUNTY • RIO GRANDE VALLEY • ALEXANDRIA
SAN ANTONIO • FORT WORTH • LEESVILLE • MIDLAND • MONROE • SHREVEPORT • TEXARKANA • SHERMAN

SUBSURFACE INVESTIGATION
FOR
ELLIS I LANDFILL
WALKER COUNTY, TEXAS
SwL Project No. 90-ECA-283

Prepared for
PICKETT-JACOBS CONSULTANTS, INC.
Tyler, Texas

Prepared by
SOUTHWESTERN LABORATORIES, INC.
Austin, Texas

November 1990

TABLE OF CONTENTS

1.0 INTRODUCTION

From June 26 through July 3, 1990 Southwestern Laboratories, Inc. (SwL) supervised the installation of eight soil borings and five piezometers at the Ellis I Landfill and prepared an interim report to be included with the final Pickett-Jacobs Consultants, Inc. (PJC) report to the Texas Department of Corrections. The following discusses the procedures used to install and develop the piezometers.

Section 2.0 gives a brief summary of the regional geology and hydrogeology. Section 3.0 details the piezometer installation procedures. Fluid measurement and well development is discussed in Section 4.0.

2.0 REGIONAL GEOLOGY AND HYDROGEOLOGY

The Ellis I Landfill site is located in the Trinity River Valley; a flat, stream-laid sediment-filled valley lying within the Coastal Plain physiographic region of Texas. The valley is partly bounded along its north edge by an escarpment consisting of Quaternary and Tertiary age sediments at the base of which the river is currently flowing. The formations underlying the valley sediments are all sedimentary, dipping southeastward toward the gulf at low angles and cropping out as northeastward-striking bands across the county. Parts of the drainage basins of the Trinity River proximate to the study area flow parallel to the strike of these sedimentary rocks, particularly Bedias, South Bedias and Nelson Creeks. The names, ages, and descriptions of the formations occurring in the study area in stratigraphically descending order are as follows:

Age (System/Series)	Formation	Description (Thickness, ft.)
Quaternary/Recent	Alluvium	Clay, silt, sand, organic matter abundant locally (0-?)
Quaternary/Recent or Late (?) Pleistocene	Deweyville	Sand, silt and clay, some gravel (0-750)
Quaternary/Pleistocene	Beaumont	Mostly clay, silt and sand (±100)
Tertiary/Miocene	Catahoula	Mudstone and sand (250-300)
Tertiary/Eocene	Jackson Group* (Undifferentiated)	Quartz sand, sandy shale, shale tuffaceous, lignitic, argillaceous, glauconitic
Tertiary/Eocene	Yegua	Sand and shale, lignitic

*Includes Whitsett, Maning, Wellborn and Caddell Formations.
Source: Adapted from University of Texas (1968) and Winslow (1950).

The groundwater system beneath the Trinity River Valley has not been described well in the literature. According to Winslow (1950), the Quaternary sediments are not known to yield large supplies of water. The formation of the Catahoula and Jackson Group are considered to yield small to moderate supplies of potable water.

3.0 PIEZOMETER INSTALLATION In order to determine groundwater flow directions, velocity, water quality and aquifer characteristics, five (5) permanent piezometers were installed. These piezometers are designated P-1 through P-5. The piezometers are constructed of four inch diameter, schedule 40, threaded, flush jointed-PVC pipe with 0.010-inch machine slotted well screen. The position of the screen was determined by the location of the water bearing zone. The screened interval was placed from the bottom of the boring to at least two (2) feet above the level of the water table to allow for seasonal fluctuations in water levels.

The casing, screen and sandpack were installed through the hollow stem of the augers. The sandpack consisted of clean Texblast silica sand that extends from the bottom of the screen to at least a foot above the top of the screen. The sand packed interval for P-1 was from twenty-five and one-half (25.5) to three (3) feet. P-2 was sand packed from thirty-one (31) to three and one-half (3.5) feet. P-3 was sand packed from twenty (20) to three (3) feet. P-4 was sand packed from twenty-one and one-half (21.5) to three (3) feet and P-5 was sand packed from thirty-four (34) to six and one-half (6.5) feet. The piezometers were surged during sand installation to assure proper compaction of the sand. The sandpack was sealed with a minimum of eighteen (18) inches of 1/4 inch hydrated bentonite pellets followed by a grout mixture of 12:1 portland cement to granular bentonite which was placed from the annular seal to the surface completion. The piezometers were completed above grade with four (4) foot square concrete pads and steel stick up locking boxes, and locking monitor well caps. Construction details are presented on the piezometer logs.

<u>**4.0 FLUID MEASUREMENTS**</u> Following installation, the piezometers were developed to remove any water or fine grain materials introduced during drilling, and to bring the piezometers into proper hydraulic connection with the aquifer. Development was accomplished by surging and bailing. During development slight sewer gas odors were detected in the development waters from P-2, P-3, P-4, and P-5. The piezometers were allowed to equilibrate before fluid level measurements were obtained. The

rims of each casing were levelled to mean sea level, by a registered land surveyor, in order to determine relative groundwater elevations. Table 1 shows the casing elevations, water levels and groundwater elevations for each well on July 31 and August 14, 1990. The static water levels in relationship to the strata penetrated indicate the shallow groundwater is under unconfined conditions.

The groundwater elevations from Table 1 were plotted on base maps of the site and contoured. Figures A and B are groundwater elevation contour maps from July 31 and August 14, 1990, respectively. As seen in the figures, groundwater flow direction is towards the east with an average gradient of $6.12X10^{-4}$.

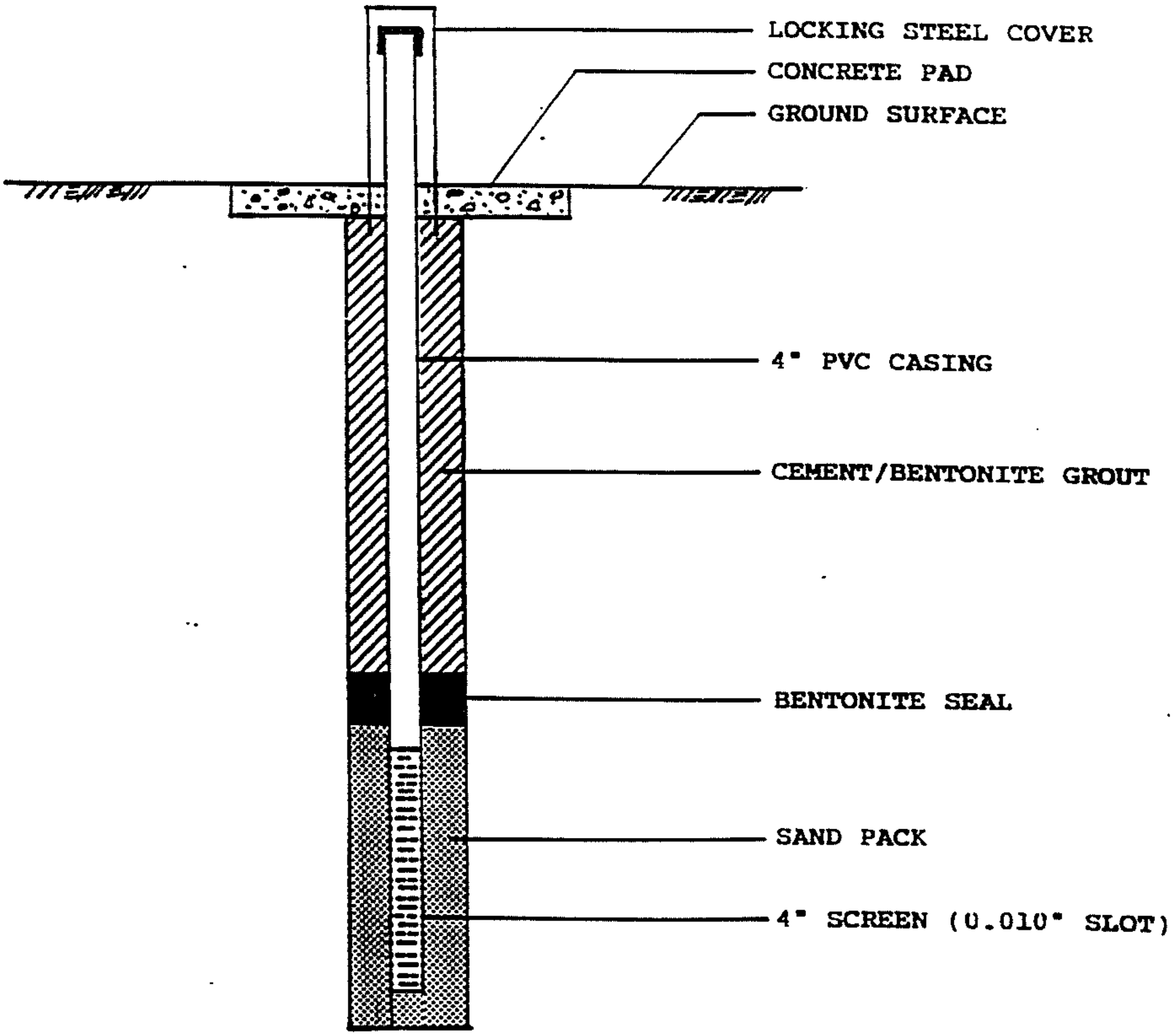
TABLE 1
GROUNDWATER ELEVATIONS
ELLIS I LANDFILL
WALKER COUNTY, TEXAS
SwL PROJECT NO. 90-ECA-283
(all measurements in feet)

WELL	CASING[1] ELEVATION	DEPTH[2] TO WATER	CORRECTED GROUND-WATER ELEVATION
		-- JULY 31, 1990 --	
P-1	143.48	13.49	129.99
P-2	143.82	14.10	129.72
P-3	139.36	9.82	129.54
P-4	139.19	9.42	129.77
P-5	146.13	16.11	130.02
		-- AUGUST 14, 1990 --	
P-1	143.48	13.61	129.87
P-2	143.82	14.20	129.62
P-3	139.36	10.00	129.36
P-4	139.19	9.62	129.57
P-5	146.13	16.24	129.89

[1] Relative to MSL

[2] Measured from top of casing

APPENDIX B



PIEZOMETER/MONITOR WELL
COMPLETION DETAILS
TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

SCALE: None

DATE: 9-1-90 JOB NO. 147-90

PICKETT-JACOBS CONSULTANTS, INC.
LUFKIN HUNTSVILLE TYLER

APPENDIX C

BORING & PIEZOMETER LOCATION LIST

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

WALKER COUNTY, TEXAS

Boring/Piezometer No.	Coordinates		MSL Elevation (ft.)	
	North	East	Ground Surface	Top of Casing
B-1	9991.2	9973.6	141.43	NA
B-2	10205.5	9699.3	140.56	NA
B-3	10649.2	9458.1	142.16	NA
B-4	10689.2	9669.1	142.26	NA
B-5	10913.8	9859.9	135.80	NA
B-6	10629.4	10120.2	135.33	NA
B-7	10326.5	10368.3	135.86	NA
B-8	10180.2	10201.9	140.36	NA
P-1	10257.4	9657.3	140.14	143.48
P-2	10175.4	10144.7	140.77	143.82
P-3	10298.7	10392.6	136.14	139.36
P-4	10759.6	9995.7	136.08	139.19
P-5	10684.0	9670.6	142.28	145.75

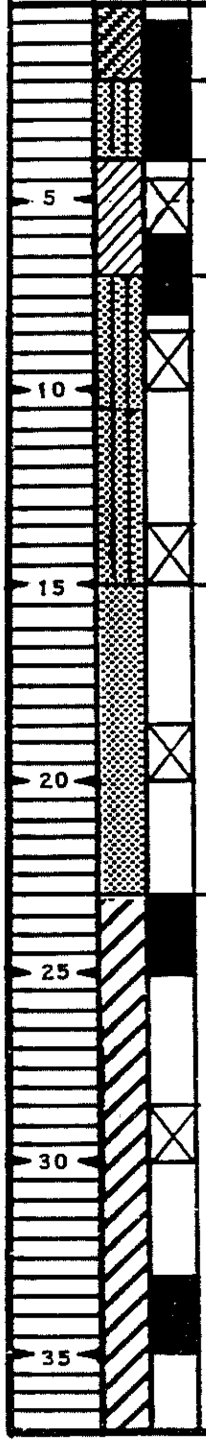
LOG OF BORING NO. 1

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas
JOB NO.: 147-90
DATE: 6-26-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 141.43



DEPTH (FT.)	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
2.0'		2.5	Firm gray and tan clayey sand (road fill) (SC)			
4.0'		2.5	Firm tan and brown silty fine sand (SM)	Non-Plastic		
7.0'	19	4.5 2.2	Very stiff tan and gray sandy clay (jointed) (CL)	37	15	22
15.0'	24 24	--	Firm tan and brown silty fine sand (SM) -becomes tan (dry) -with occasional thin seam of clayey sand	Non-Plastic		
23.0'	21		Firm gray and tan fine to medium sand (SP)			
	44	4+ 4+ 4+	Hard dark gray clay with tiny sand pockets and occasional silt laminations, crumbly (CH) -with 3/4" vertical crack filled with light gray clayey silt	72	33	39

(Continued on Page 2)

LOG OF BORING NO. 1

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-26-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 141.43

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT^2)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
	▨	■		4+	Hard laminated dark gray clay with silt-filled vertical joint (CH)			
40					40.0'			
					Boring Terminated @ 40.0'			
					Boring was grouted from 40' after completion of drilling.			
45								
50								
55								
60								
65								

LOG OF BORING NO. 2

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-26-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 140.56

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT^2)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
	▨	■		4+	(6" Tan silty sand topsoil)			
	▨	■		4+	Hard brown and tan sandy clay, jointed (CL)	40	13	27
5	▨	■		4+	-becomes tan and gray very sandy clay 6.0'	34	12	22
	░	☒	32		Firm tan and gray silty fine sand (SM)			
10	░	☒	25		-with clay seams 10.0'			
	░	☒	16		Firm tan fine sand (SP)	Non-Plastic		
15	░	☒	13		-becomes tan and gray fine to medium sand with gray clay seams and occasional small gravel			
20	░	☒	23		-becomes firm gray fine sand with organic laminations 22.0'	Non-Plastic		
25	░	☒	47		Dense gray fine to medium sand with organic laminations and small gravel (SP) 25.0'	Non-Plastic		
30	▨	■		4+	Hard dark gray clay with silt laminations, vertical joints, and trace of pyrite (CH)			
35	▨	■		4+	-with silt laminations and pockets, and occasional slickensides	72	30	42

(Continued on Page 2)

LOG OF BORING NO. 2

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-26-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 140.56

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL.	PL	PI
40	▨	■		4+	Hard laminated dark gray clay with vertical joints (CH) 40.0'			
					Boring Terminated @ 40.0'			
45					Boring was grouted from 40' after completion of drilling.			
50								
55								
60								
65								

LOG OF BORING NO. 3

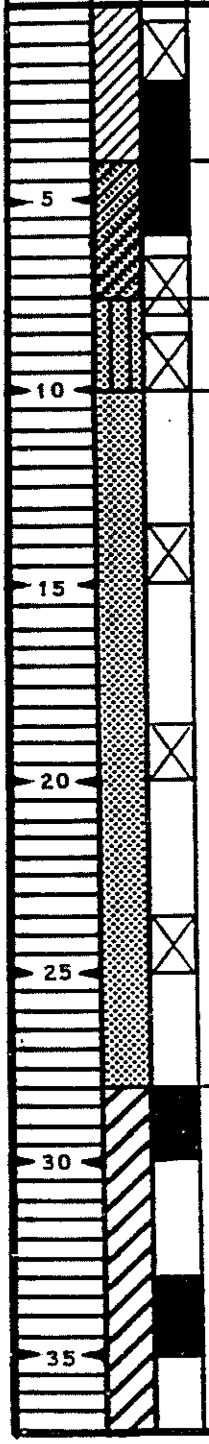
PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-26-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 142.16



STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION		ATTERBERG LIMITS (%) LL	PL	PI
48	4+ 4+	(10" Brown clayey sand topsoil) Hard reddish-tan and tan sandy clay -with coarse sand seam 4.0'	(CL)	34	14	20
16	4+	Firm tan and gray clayey sand with joints 7.5'	(SC)	27	13	14
20		Firm tan silty fine sand with occasional clayey sand laminations 10.0'	(SM)	Non-	Pla	stic
23 17 36		Firm tan fine sand with seams of gray clay -becomes firm tan and gray fine to medium sand with organic laminations and thin seams of coarse sand with small gravel 28.0'	(SP)	Non	-Pla	stic
	4+ 4+	Hard dark gray clay with silt laminations, crumbly	(CH)	68	26	42

(Continued on Page 2)

PICKETT-JACOBS CONSULTANTS, INC.

LOG OF BORING NO. 3

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-26-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	DEPTH TO WATER: – STRATUM DESCRIPTION GROUND ELEV. 142.16	ATTERBERG LIMITS (%) LL	PL	PI
40	▨	■		4+	Hard dark gray clay with silt laminations and vertical joints (CH) 40.0'			
					Boring Terminated @ 40.0' Boring was grouted from 40' after completion of drilling.			
45								
50								
55								
60								
65								

LOG OF BORING NO. 4

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas
JOB NO.: 147-90
DATE: 6-27-90
LOCATION: See Boring Plan
TYPE BORING/SAMPLING: Dry Auger & Rotary Wash
DEPTH TO WATER:
GROUND ELEV. 142.26

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
	▨	■		4+ 4+	Hard brown sandy clay with gravel and brick debris (fill) (CL) 4.0'			
5	▨	■		4+ 4+	Hard tan and reddish-tan sandy clay with joints (CL) -becomes tan and gray very sandy clay 8.5'	30	14	16
10		☒	38		Dense tan silty fine sand (dry) (SM) 11.0'			
15 20 25 30		☒ ☒ ☒ ☒ ☒	14 16 42 20 24		Firm tan fine sand with gray clay seams (SP) -with occasional small gravel and thin clay seams -becomes fine to medium sand with occasional small gravel and clay seams -becomes firm gray fine to medium sand with occasional small gravel and organic seams 33.0'	Non-Plastic Non-Plastic		
35	▨	☒	20	4+	Hand laminated dark gray clay (CH)			

(Continued on Page 2)

LOG OF BORING NO. 4

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-27-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Dry Auger and Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 142.26

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT^2)	STRATUM DESCRIPTION		ATTERBERG LIMITS (%) LL	PL	PI
40	▨	☒	49		Hard laminated dark gray clay with clayey sand layers and organic pockets 40.0'	(CH)	47	22	25
45					Boring Terminated @ 40.0'				
50									
55									
60									
65									

Boring was drilled by dry auger to 13'.

Seepage @ 12' in auger boring.

Boring was caved and dry @ 12' 30 minutes later. Continued drilling by rotary wash.

Boring was grouted from 40' after completion of drilling.

LOG OF BORING NO. 5

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-27-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 135.80

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
	▩	■		4+	(6" Silty sand topsoil) 1.5' Firm brown clayey sand (SC)			
	▨	■		4+	Hard brown and tan sandy clay (CL) 4.0'			
5	▨	■		4.0 1.5	Hard to stiff gray and tan sandy clay, very jointed (CL) 7.0'	40	14	26
10 15	░	☒ ☒ ☒	10 13 25		Firm gray and tan fine sand with occasional small gravel (SP) -becomes fine to medium sand 16.0'	Non-Plastic		
20	░	☒	14		Firm gray fine to coarse sand with small gravel (SP) 22.0'	Non-Plastic		
25 30	▨	☒ ■	44	4+	Hard dark gray clay with silt laminations (CH) 30.0'	82	32	50
35					Boring Terminated @ 30.0' Heavy caving of boring while drilling. Used polygel, but caving continued. Boring was grouted form 30' after completion of drilling.			

PICKETT-JACOBS CONSULTANTS, INC.

LOG OF BORING NO. 6

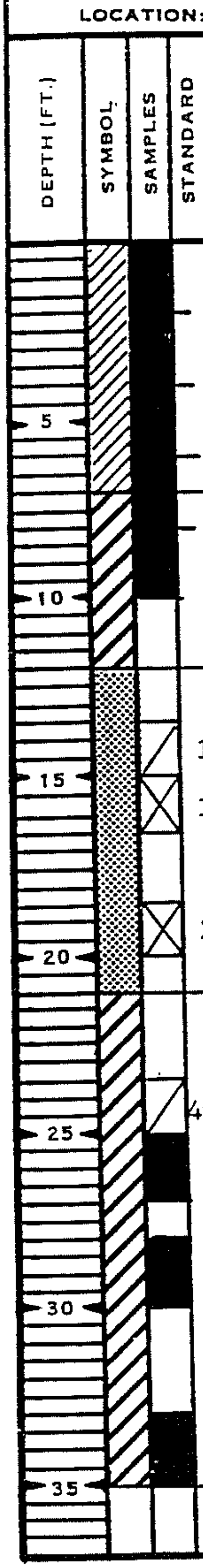
PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-27-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 135.33



STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
	4+ 4+ 3.7	(6" Clayey sand topsoil) Hard brown and gray very sandy clay (CL) -becomes dark brown and gray sandy clay -becomes gray and brown with vertical sand seams 7.0'	23 35	16 13	7 22
	2.5 2.7	Very stiff gray, tan and brown clay with vertical sand seams (CH) 12.0'	56	15	41
11 19 28		Firm tan fine sand (SP) -becomes firm tan and gray fine to medium sand with clay seams and small gravel 21.0'	Non-Plastic Non-Plastic		
49	4+ 4+ 4+	Hard dark gray clay with silt laminations and slickensides, crumbly (CH) 35.0'	88	33	55

Boring Terminated @ 35.0'

Boring was grouted from 35' after completion of drilling.

PICKETT-JACOBS CONSULTANTS, INC.

LOG OF BORING NO. 7

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-28-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 135.86

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT^2)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
		■		4+	2.0' Firm brown clayey sand (SC)			
		■		4+	4.0' Hard dark brown sandy clay (CL)	37	13	24
5		■		3.7	6.5' Hard gray and tan sandy clay with joints (CL)	40	14	26
		■ ☒	21	0.5	9.5' Firm gray fine sand with seams of gray clay and medium sand (SP)	Non-Plastic		
10					12.0' Firm reddish-tan fine sand (SP)	Non-Plastic		
15		☒	13	--	18.0' Firm gray fine to coarse sand with organic seams (SP)	Non-Plastic		
20 25 30		☒ ■ ■	48	4+ 4+ 4+	30.0' Hard dark gray clay with silt laminations (CH) -with vertical and horizontal sand seams	84	34	50
35					Boring Terminated @ 30.0' Boring was grouted from 30' after completion of drilling.			

PICKETT-JACOBS CONSULTANTS, INC.

LOG OF BORING NO. 8

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas
JOB NO.: 147-90
DATE: 6-28-90

LOCATION: See Boring Plan **TYPE BORING/SAMPLING:** Rotary Wash

DEPTH TO WATER:

GROUND ELEV. 140.36

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION	ATTERBERG LIMITS (%) LL	PL	PI
		■		4+	2.0' Firm brown and gray silty fine sand (SM)			
		■		4+	Hard reddish-tan, gray and tan sandy clay (CL)			
5		■		4+	-becomes tan and gray very sandy clay with vertical joints 6.5'	25	14	11
		■		3.0	Firm tan and brown silty fine sand (SM)	Non-Plastic		
10		☒	19		10.0'			
					Dense tan and brown fine sand with small gravel (SP)			
15		☒	30			Non-Plastic		
20		☒	30		-becomes tan and gray fine to coarse sand with small gravel and occasional thin clay seams			
25		☒	29			Non-Plastic		
30		☒	61		-becomes very dense medium to coarse sand with small to medium gravel and clay seams -becomes silty fine sand @ 29.5' 31.0'	Non-Plastic		
35		☒	67	4+	Hard dark gray clay with silt laminations and tiny silt pockets (CH)			

(Continued on Page 2)

LOG OF BORING NO. 8

PROJECT: Ellis I Landfill, Texas Dept. of Corrections
Walker County, Texas

JOB NO.: 147-90
DATE: 6-28-90

LOCATION: See Boring Plan TYPE BORING/SAMPLING: Rotary Wash

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	DEPTH TO WATER: STRATUM DESCRIPTION GROUND ELEV. 140.36	ATTERBERG LIMITS (%) LL	PL	PI
40	▨	☒	77		Hard dark gray clay with silt laminations and pockets (CH) 40.0'	79	25	54
					Boring Terminated @ 40.0' Boring was grouted from 40.0' after completion of drilling.			
45								
50								
55								
60								
65								

APPENDIX D

SUMMARY OF LABORATORY TEST DATA

PROJECT: **Ellis I Landfill, TDC**
Walker County, Texas

JOB NO: 147-90

Date: 8-2-90

BORING NO.	DEPTH (feet)	DESCRIPTION OF SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	AMOUNT PASSING NO. 200 SIEVE (%)	ATTERBERG LIMITS (%)			COMPRESSION TEST			Coefficient of Permeability (cm/sec)
						LL	PL	PI	STRENGTH (tsf)	STRAIN (%)	LATERAL PRESSURE (psi)	
1	2-4	Tan and brown silty fine sand	13.5	111.8	42.3	Non-Plastic						1.79×10^{-8}
	4½-6	Tan and gray sandy clay	18.7		57.7	37	15	22				
	13½-15	Tan silty fine sand	24.0		11.6	Non-Plastic						
	23-25	Dark gray clay	31.2		97.4	72	33	39				
2	2-4	Brown and tan sandy clay	10.1		74.2	40	13	27				
	4-6	Tan and gray very sandy clay	10.6		54.1	34	12	22				
	10-11½	Tan fine sand	21.6		5.3	Non-Plastic						
	18½-20	Gray fine sand	19.0		5.9	Non-Plastic						
	23½-25	Gray fine to medium sand	16.5		5.4	Non-Plastic						
	33-35	Dark gray clay	29.5		99.0	72	30	42				

SUMMARY OF LABORATORY TEST DATA

PROJECT: **Ellis I Landfill, TDC**
Walker County, Texas

JOB NO: **147-90**

Date: **8-2-90**

BORING NO.	DEPTH (feet)	DESCRIPTION OF SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	AMOUNT PASSING NO. 200 SIEVE (%)	ATTERBERG LIMITS (%)			COMPRESSION TEST			Coefficient of Permeability (cm/sec)
						LL	PL	PI	STRENGTH (tsf)	STRAIN (%)	LATERAL PRESSURE (psi)	
3	2-4	Reddish-tan and tan sandy clay	12.1		63.1	34	14	20				
	4-6	Tan and gray clayey sand	6.2	107.3	46.8	27	13	14				8.84x10^{-7}
	8½-10	Tan silty fine sand	19.8		11.5	Non-Plastic						
	18½-20	Tan and gray fine to medium sand	19.8		3.7	Non-Plastic						
	28-30	Dark gray clay	30.1	87.7	98.5	68	26	42				6.47x10^{-8}
4	2-4	Brown sandy clay	12.4		61.7	32	18	14				
	6-8	Tan and gray sandy clay	12.9		61.1	30	14	16				
	13½-15	Tan fine sand	21.8		6.4	Non-Plastic						
	23½-25	Tan fine to medium sand	19.2		1.6	Non-Plastic						
	38-40	Dark gray clayey sand	22.1		41.9	47	22	25				

SUMMARY OF LABORATORY TEST DATA

PROJECT: **Ellis I Landfill, TDC**
Walker County, Texas

JOB NO: 147-90

Date: 8-2-90

BORING NO.	DEPTH (feet)	DESCRIPTION OF SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	AMOUNT PASSING NO. 200 SIEVE (%)	ATTERBERG LIMITS (%)			COMPRESSION TEST			Coefficient of Permeability (cm/sec)
						LL	PL	PI	STRENGTH (tsf)	STRAIN (%)	LATERAL PRESSURE (psi)	
5	4-6	Gray and tan sandy clay	18.0	111.6	58.2	40	14	26				1.16×10^{-8}
	8½-10	Gray and tan fine sand	21.5		7.9	Non-Plastic						
	18½-20	Gray fine to coarse sand	12.9		8.0	Non-Plastic						
	23½-25	Dark gray clay	32.8		97.5	82	32	50				
6	0-2	Brown and gray sandy clay	9.8		59.8	23	16	7				
	4-6	Brown and gray sandy clay	15.3	112.6	60.8	35	13	22				1.71×10^{-8}
	8-10	Gray, tan and brown clay	21.7		78.4	56	15	41				
	15-16½	Tan and gray fine to medium sand	21.1		4.9	Non-Plastic						
	18½-20	Tan and gray fine to medium sand	16.6		5.5	Non-Plastic						
	25-27	Dark gray clay	33.7		99.5	88	33	55				

SUMMARY OF LABORATORY TEST DATA

PROJECT: Ellis I Landfill, TDC
Walker County, Texas

JOB NO: 147-90

Date: 8-2-90

BORING NO.	DEPTH (feet)	DESCRIPTION OF SAMPLE	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	AMOUNT PASSING NO. 200 SIEVE (%)	ATTERBERG LIMITS (%)			COMPRESSION TEST			Coefficient of Permeability (cm/sec)
						LL	PL	PI	STRENGTH (tsf)	STRAIN (%)	LATERAL PRESSURE (psi)	
7	2-4	Dark brown sandy clay	11.3		50.4	37	13	24				
	4-6	Gray and tan sandy clay	17.7		56.4	40	14	26				
	6-8	Gray fine sand	22.6		7.5	Non-Plastic						
	9½-10	Reddish-tan fine sand	20.8		5.2	Non-Plastic						
	13½-15	Gray fine to coarse sand	20.6		3.7	Non-Plastic						
	18½-20	Dark gray clay	34.6		94.8	84	34	50				
	23-25	Dark gray clay	33.4	83.6								8.70×10^{-9}
8	4-6	Tan and gray very sandy clay	12.6		55.6	25	14	11				
	6-8	Tan and brown silty fine sand	6.6		22.1	Non-Plastic						
	13½-15	Tan and brown fine sand	21.2		5.7	Non-Plastic						
	23½-25	Tan and gray sand	19.4		3.3	Non-Plastic						
	28½-30	Tan medium to coarse sand	14.5		3.5	Non-Plastic						
	38½-40	Dark gray clay	31.5		98.0	79	25	54				

SUMMARY OF SIEVE ANALYSIS DATA

TDC ELLIS I LANDFILL

PJC JOB NO. 147-90

Boring No.	Depth (ft.)	Amount Passing Designated Sieve (%)						
		No.4	No.10	No. 40	No.50	No.80	No.100	No.20
1	13½-15	98.9	98.5	98.1	93.5	42.1	22.9	11.6
2	10-11½	100	100	99.9	98.9	28.3	16.5	5.3
2	18½-20	99.7	99.1	92.5	70.3	24.5	15.5	5.9
2	23½-25	95.4	92.2	79.6	61.1	24.0	15.1	5.4
3	8½-10	100	100	99.9	99.6	79.7	51.3	11.5
3	18½-20	98.8	95.7	68.1	32.1	12.8	8.4	3.7
4	13½-15	98.3	98.1	97.2	84.3	25.0	15.3	6.4
4	23½-25	98.5	97.1	78.5	30.7	6.3	3.6	1.6
5	8½-10	99.8	99.8	99.3	81.7	34.7	21.4	7.9
5	18½-20	92.1	81.5	48.0	35.2	22.7	17.7	8.0
6	15-16½	98.1	97.0	93.4	61.5	13.0	8.8	4.9
6	18½-20	97.8	89.3	68.5	48.2	13.1	9.4	5.5
7	4-6	100	100	100	99.8	89.4	82.6	56.4
7	6-8	100	100	99.9	96.7	40.1	26.6	7.5
7	8½-10	100	99.9	99.2	89.9	39.6	22.6	5.2
7	13½-15	99.7	98.8	87.1	61.1	29.7	15.1	3.7
8	6-8	100	100	99.9	99.4	59.5	46.2	22.1
8	13½-15	100	100	99.1	93.3	29.4	16.6	5.7
8	23½-25	98.8	97.2	90.0	62.1	31.6	10.0	3.3
8	28½-30	69.7	55.3	41.6	30.5	12.7	7.3	3.5

KEY TO SOIL CLASSIFICATIONS AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM(1)

Major Divisions		Letter	Symbol Hatching	Symbol Color	Name
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	⁙	RED	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	⁙		Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	⫼	YELLOW	Silty gravels, gravel-sand-silt mixtures
		GC	▨		Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS	SW	⁚	RED	Well-graded sands or gravelly sands, little or no fines
		SP	⁘		Poorly-graded sands or gravelly sands, little or no fines
		SM	⫼	YELLOW	Silty sands, sand-silt mixtures
		SC	▦		Clayey sands, sand-clay mixtures
FINE GRAINED SOILS	SILTS AND CLAYS LL <50	ML	‖	GREEN	Inoganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	▨		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	⫶		Organic silts and organic silt-clays of low plasticity
	SILTS AND CLAYS LL > 50	MH	▥	BLUE	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	▨		Inorganic clays of high plasticity, fat clays
		OH	▩		Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		Pt	☰	ORANGE	Peat and other highly organic soils

TERMS CHARACTERIZING SOIL STRUCTUR

SLICKENSIDED—having inclined planes of weakness that are slick and glossy in appearance

FISSURED—containing shrinkage cracks frequently filled with fine sand or silt usually more or less vertical

LAMINATED (VARVED)—composed of thin layers of varying color and texture, usually grading from sand o silt at the bottom to clay at the top

CRUMBLY—cohesive soils which break into small blocks or crumbs on drying.

CALCAREOUS—containing appreciable quantities of calcium carbonate, generally nodular.

WELL GRADED—having wide range in grain sizes and substantial amounts of all intermediate particle sizes.

POORLY GRADED—predominantly of on grain size (uniformly graded) or having a range of sizes with some intermediate size missing (gap or skip graded).

SYMBOLS FOR TEST DATA

M/C=15 —Natural moisture content in percent.

γ =95 —Dry unit weight in lbs/cu ft.

Qu=1.23 —Unconfined compression strength in tons/sq ft.

Qc=1.68 (21 psi)—Confined compression strength at indicated lateral pressure

51-21-30 —Liquid limit, Plastic limit, and Plasticity index.

30% FINER—Percent finer than No. 200 mesh sieve.

30 B/F — Blows per foot, standard penetration test.

▼ —Ground water table.

TERMS DESCRIBING CONSISTENCY OF SOIL(2)

COARSE GRAINED SOILS		FINE GRAINED SOILS		
DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	DESCRIPTIVE TERM	NO. BLOWS/FT STANDARD PEN. TEST	UNCONFINED COMPRESSION TONS PER SQ. FT
Very loose	0-4	Very Soft	< 2	< 0.25
Loose	4-10	Soft	2-4	0.25-0.50
Firm (medium)	10-30	Plastic (med. stiff)	4-8	0.50-1.00
Dense	30-50	Stiff	8-15	1.00-2.00
Very Dense	over 50	Very Stiff	15-30	2.00-4.00
		Hard	over 30	over 4.00

Field classification for "Consistency" is determined with a 0.25" diam. penetrometer.

SYMBOLS FOR SAMPLE · TYPE

1-From Waterways Experiment Station Technical Memorandum No. 3-357
2-From "Soil Mechanics in Engineering Practice" by Terzaghi and Peck

APPENDIX E

TABLE
SAMPLING AND PRESERVATION PROCEDURES - WATER

Parameter	Recommended Container*	Preservation**	Maximum Holding Time
Volatile Organic Compounds	G, Teflon-lined cap [2]	Cool, 4°C	7 days
Pesticides and Herbicides	G-amber, Teflon-lined cap [2]	Cool, 4°C	7 days until extraction 40 days after extraction
PCB's	G-amber, Teflon-lined cap [2]	Cool, 4°C	7 days until extraction 40 days after extraction
Polynuclear Aromatic Hydrocarbons	G, Teflon-lined cap [2]	Cool, 4°C, 0.008% $Na_2S_2O_3$ [1] Store in dark	7 days until extraction 40 days after extraction
EP Toxicity Metals - As, Ba, Cd Cr, Pb, Se, Ag	P,G	NA-Ambient Temp.	6 months
EP Toxicity Metals - Mercury	P,G	NA-Ambient Temp.	28 days
Hydrogen ion (pH)	P,G	None required	Analyzed immediately
Cyanide	P,G	Cool, 4°C, NaOH to pH>12	14 days
Reactivity	G	Cool, 4°C	Not applicable
Ignitability	G	Cool, 4°C	Not applicable

* G = Glass
P = Plastic - All sample containers will be cleaned and prepared in accordance with EPA specifications.

[1] Should only be used in the presence of residual chlorine

NOTE: additional parameters will be handled in accordance with the incorporated reference documents.

** Preservation to be performed by field personnel.

[2] Aluminum-lined caps are acceptable for noncorrosive samples.

TABLE
SAMPLE AND PRESERVATION PROCEDURES - SOIL, SEDIMENT, WASTE

Parameter	Recommended Container*	Preservation[1]	Maximum Holding Time
Volatile Organic Compounds	G, Teflon-lined cap [2]	Cool, 4°C	14 days
Pesticides and Herbicides	G, Teflon-lined cap [2]	Cool, 4°C	14 days until extraction 40 days after extraction
PCB's	G, Teflon-lined cap [2]	Cool, 4°C	14 days until extraction 40 days after extraction
Polynuclear Aromatic Hydrocarbons	G, Teflon-lined cap [2]	Cool, 4°C	14 days until extraction 40 days after extraction
EP Toxicity Metals	P,G	NA-Ambient Temp.	6 months
Hydrogen ion (pH)**	P,G	Cool, 4°C	14 days
Cyanide	P,G	Cool, 4°C	14 days
Reactivity	G	Cool, 4°C	Not applicable
Ignitability***	G	Cool, 4°C	Not applicable

* G = Glass
P = Plastic - All sample containers will be cleaned and prepared in accordance with EPA specifications.

** pH of a soil will be performed on a 1:1 mixture of soil and deionized water

*** Currently, there is no acceptable test for ignitability of a soil

NOTE: additional parameters will be handled in accordance with the incorporated reference documents.

[1] Preservation to be performed by field personnel.

[2] Aluminum-lined caps are acceptable for noncorrosive samples.

PERMEABILITY TEST REPORT

Project:	TDC Ellis I Landfill, Walker County, Texas	Date:	9-5-90
Client:	Texas Department of Corrections, Huntsville, Texas	Job No.:	147-90
Type of test:	Falling Head	Report No.:	9-1
Test Method:	Appendix VII, C of E Manual EM 1110-2-1906		

Test specimens were trimmed from undisturbed core samples obtained from borings drilled at this site during June 26-28, 1990. Permeability test results follow:

Boring No.	Depth (ft.)	Soil Description/Class		Atterberg Limits (%) LL	PL	PI	Amount Passing No. 200 Sieve (%)	Moisture Content (%)	Dry Unit Wt. (pcf)	Coefficient of Permeability (cm/sec)
2	2-4	Sandy Clay	(CL)	40	13	27	74.2	10.5	111.8	$1.79x10^{-8}$
3	4-6	Clayey Sand	(SC)	27	13	14	46.8	9.4	107.3	$8.84x10^{-7}$
3	28-30	Clay	(CH)	68	26	42	98.5	31.5	87.7	$6.47x10^{-8}$
5	4-6	Sandy Clay	(CL)	40	14	26	58.2	17.3	111.6	$1.16x10^{-8}$
6	4-6	Sandy Clay	(CL)	35	13	22	60.8	15.4	112.6	$1.71x10^{-8}$
7	23-25	Clay	(CH)	84	34	50	94.8	33.4	83.6	$4.31x10^{-9}$
TDH criteria for maximum permeability**										$1.00x10^{-7}$

**Maximum permeability permitted by Texas Department of Health for a 3-foot thickness of soil forming the bottom and sidewalls of landfill trenches.

PICKETT-JACOBS CONSULTANTS, INC.

APPENDIX C

MONITORING WELL BORING LOGS

PHASE I GEOTECHNICAL/GROUNDWATER INVESTIGATION

LOG OF PIEZOMETER NO. P-1

PROJECT: TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

JOB NO.: 147-90
DATE: 7-2-90

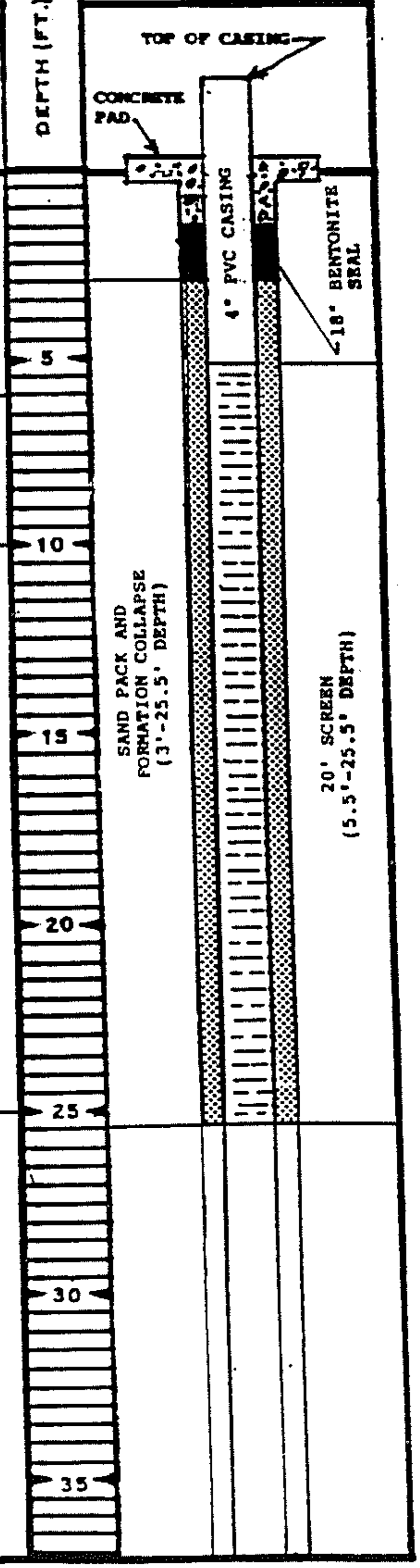
LOCATION: See boring Plan **TYPE BORING/SAMPLING:** 7.5" Hollow Stem Auger

DEPTH TO WATER:

GROUND ELEV. 140.14

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT.^{2})	STRATUM DESCRIPTION
0–6.0'					Sandy clay (CL) 6.0'
6.0–10.0'					Silty fine sand (SM) 10.0'
10.0–25.0'					Fine to medium sand (SP) 25.0'
25.0' –					Clay (CH) See Log of Boring No.2 for detailed soil stratigraphy.

PIEZOMETER DATA



PICKETT-JACOBS CONSULTANTS, INC.

PHASE I GEOTECHNICAL/GROUNDWATER INVESTIGATION

LOG OF PIEZOMETER NO. P-2

PROJECT: TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

JOB NO.: 147-90
DATE: 7-3-90

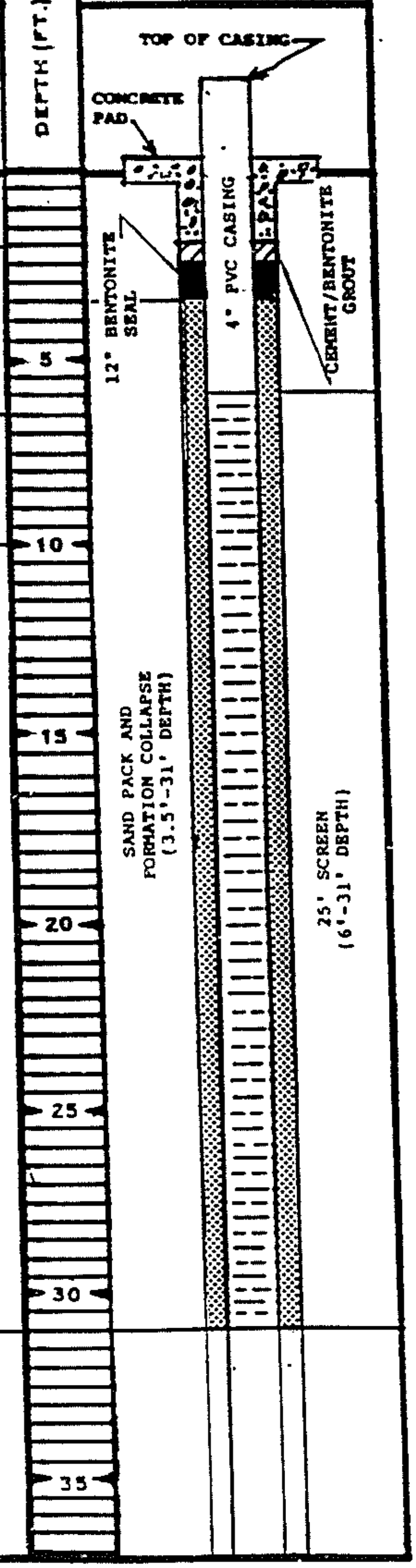
LOCATION: See boring Plan **TYPE BORING/SAMPLING:** 7.5" Hollow Stem Auger.

DEPTH TO WATER:

GROUND ELEV. 140.77

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT.2)	STRATUM DESCRIPTION
2.0'					Silty fine sand (SM)
6.5'					Sandy clay (CL)
10.0'					Silty fine sand (SM)
31.0'					Fine to coarse sand (SP)
					Clay (CH) See Log of Boring No. 8 for detailed soil stratigraphy.

PIEZOMETER DATA



PICKETT-JACOBS CONSULTANTS, INC.

PHASE I GEOTECHNICAL/GROUNDWATER INVESTIGATION

LOG OF PIEZOMETER NO. P-3

PROJECT: TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

JOB NO.: 147-90
DATE: 7-2-90

LOCATION: See boring Plan **TYPE BORING/SAMPLING:** 7.5" Hollow Stem Auger

DEPTH TO WATER:

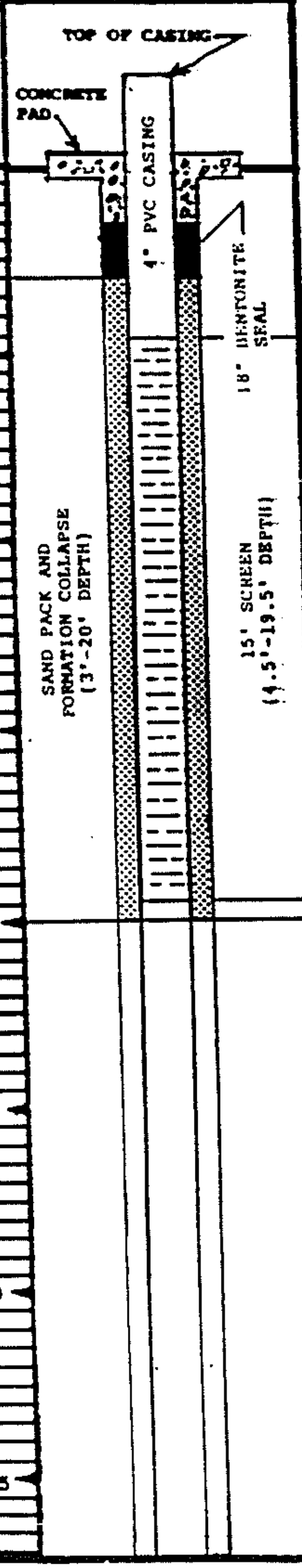
GROUND ELEV. 136.14

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION	
2.0'	▨				Clayey sand	(SC)
6.5'	▨				Sandy clay	(CL)
18.0'	▨				Fine to coarse sand	(SP)
	▨				Clay	(CH)

Depth scale (FT.): 5, 10, 15, 20, 25, 30, 35

See Log of Boring No. 7 for detailed soil stratigraphy.

PIEZOMETER DATA



PICKETT-JACOBS CONSULTANTS, INC.

LOG OF PIEZOMETER NO. P-4

PROJECT: TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

JOB NO.: 147-90
DATE: 7-2-90

LOCATION: See boring Plan **TYPE BORING/SAMPLING:** 7.5" Hollow Stem Auger

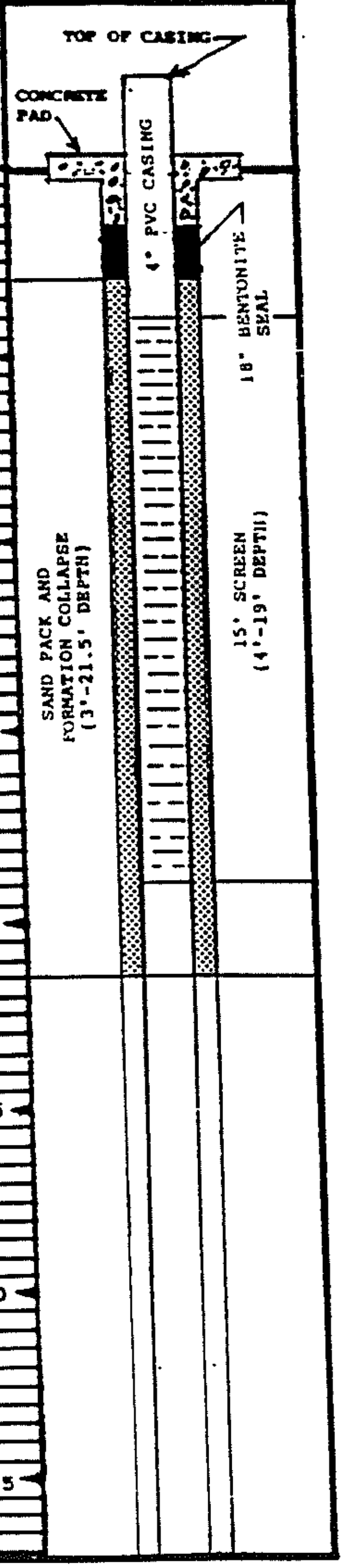
DEPTH TO WATER:

GROUND ELEV. 136.08

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT²)	STRATUM DESCRIPTION
1.5'					Clayey sand (SC)
7.0'					Sandy clay (CL)
22.0'					Fine to coarse sand (SP)
					Clay (CH)

See Log of Boring No.5 for detailed soil stratigraphy.

PIEZOMETER DATA



LOG OF PIEZOMETER NO. P-5

PROJECT: TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

JOB NO.: 147-90
DATE: 7-3-90

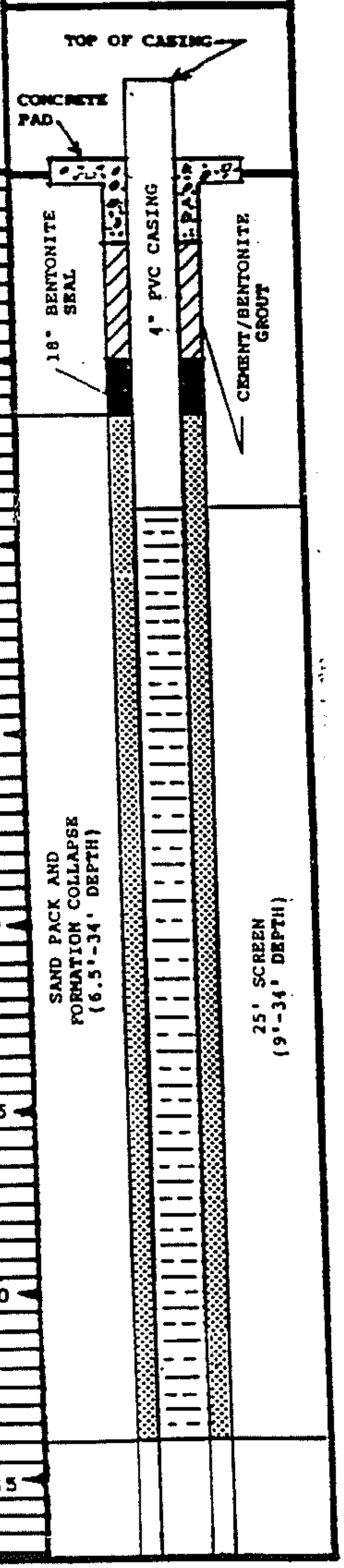
LOCATION: See boring Plan **TYPE BORING/SAMPLING:** 7.5" Hollow Stem Auger

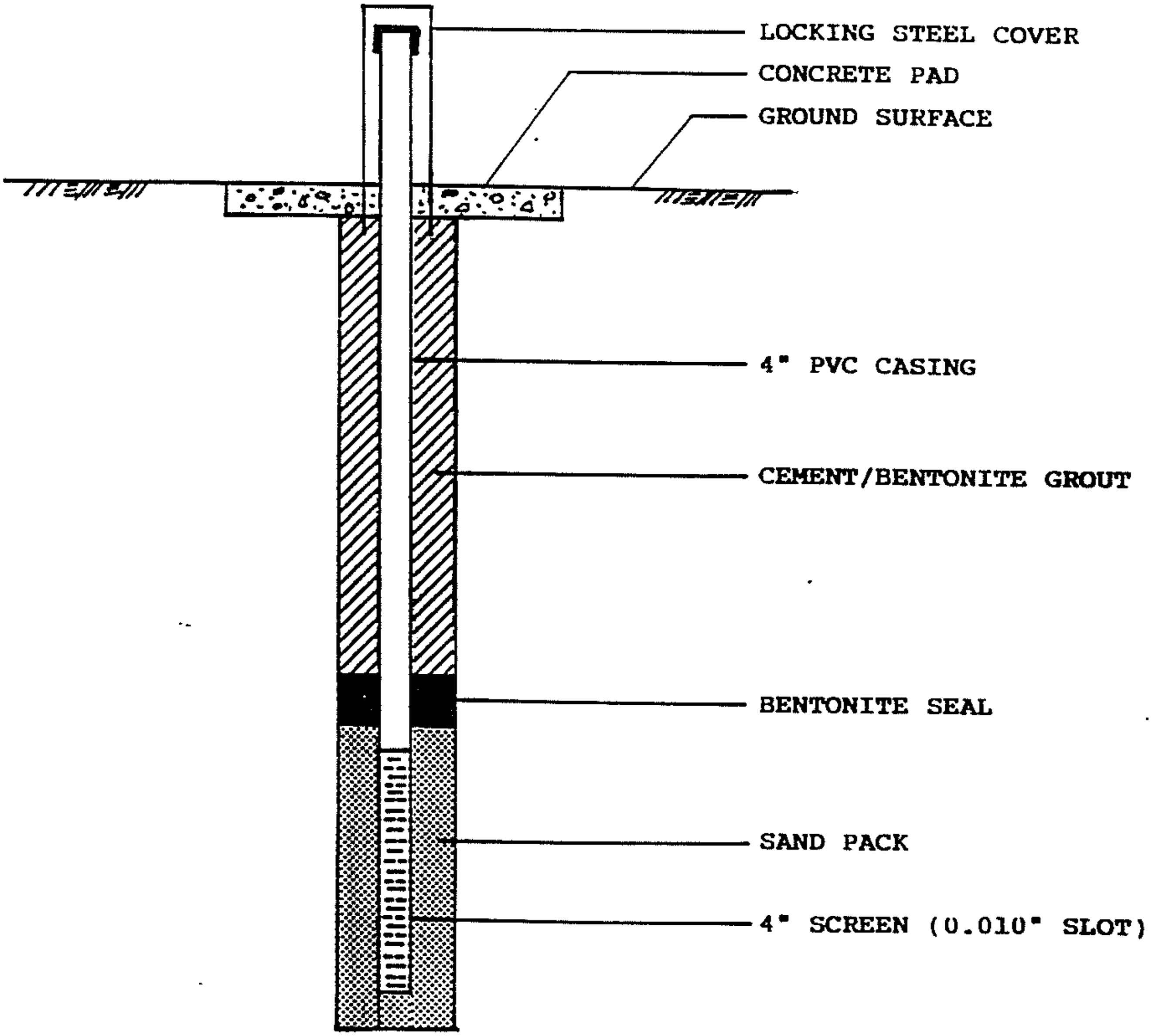
DEPTH TO WATER:

GROUND ELEV. 142.28

DEPTH (FT.)	SYMBOL	SAMPLES	STANDARD PENETROMETER (BLOWS/FT.)	HAND PENETROMETER (TONS/FT.²)	STRATUM DESCRIPTION
0 – 8.5					Sandy clay (CL) 8.5'
8.5 – 11.0					Silty fine sand (SM) 11.0'
11.0 – 33.0					Fine to medium sand (SP) 33.0'
33.0 –					Clay (CH) See Log of Boring No. 4 for detailed soil stratigraphy.

PIEZOMETER DATA





PIEZOMETER/MONITOR WELL
COMPLETION DETAILS
TDC ELLIS I LANDFILL
WALKER COUNTY, TEXAS

SCALE: None

DATE: 9-1-90 JOB NO. 147-90

PICKETT-JACOBS CONSULTANTS, INC.
LUFKIN HUNTSVILLE TYLER

PIEZOMETER DEVELOPMENT INFORMATION

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-1 Piez. Screen Depth: 5.5 to 25.5 (ft.)

Piez. Casing I.D. 4.0 (in.) Top Casing Elev.: 143.48 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)		Measured Volume Water Removed (gal.)	Development Method	Remarks
	Before Dev.	After Dev.			
7/10/90	13.38		85	3" Bailer	clean smell *
		@ 11:00 13.43			
		@ 11:10 13.41			
		@ 3:15 13.35			
7/31/90	–	13.49			
8/14/90	–	13.61			

* Water coming in fast.

PIEZOMETER DEVELOPMENT INFORMATION

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-2 Piez. Screen Depth: 6 to 31 (ft.)

Piez. Casing I.D. 4.0 (in.) Top Casing Elev.: 143.82 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

	Depth to Water Level Below Top of Casing (ft.)				
Date	Before Dev.	After Dev.	Measured Volume Water Removed (gal.)	Development Method	Remarks
7/18/90	13.98		120	3" Bailer	slight sewer gas odor *
		@11:53 14.09			
		@12:03 14.04			
		@3:15 13.98			
7/31/90	–	14.10			
8/14/90	–	14.20			

* Water flowing into piezometer at fast rate.

PIEZOMETER DEVELOPMENT INFORMATION

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-3 Piez. Screen Depth: 4.5 to 19.5 (ft.)

Piez. Casing I.D. 4.0 (in.) Top Casing Elev.: 139.36 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)		Measured Volume Water Removed (gal.)	Development Method	Remarks
	Before Dev.	After Dev.			
7/18/90	9.68		85	3" Bailer	Slight sewer gas odor *
		@12:31 9.43			
		@12:51 9.77			
		@3:15 9.72			
7/31/90	—	9.82			
8/4/90	—	10.00			

* Water flowing into piezometer @ fast rate.

PIEZOMETER DEVELOPMENT INFORMATION

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-4 Piez. Screen Depth: 4 to 19 (ft.)

Piez. Casing I.D. 4.0 (in.) Top Casing Elev.: 139.19 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)		Measured Volume Water Removed (gal.)	Development Method	Remarks
	Before Dev.	After Dev.			
7/18/90	9.28		75	3" Bailer	very slight sewer gas smell *
		@ 2:50 9.48			
		@ 3:00 9.38			
		@ 3:15 9.33			
7/31/90	—	9.42			
8/14/90	—	9.62			

* Water flowing into piezometer @ fast rate.

PIEZOMETER DEVELOPMENT INFORMATION

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-5 Piez. Screen Depth: 9 to 34 (ft.)

Piez. Casing I.D. 4.0 (in.) Top Casing Elev.: 146.13 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)		Measured Volume Water Removed (gal.)	Development Method	Remarks
	Before Dev.	After Dev.			
7/18/90	15.98		130	3" Bailer	slight sewer gas * ~~[illegible]~~
		@ 2:10 16.05			
		@ 2:20 16.00			
		@ 3:15 16.00			
7/31/90	—	16.11			
8/14/90	—	16.24			

* Water flowing into piezometer @ fast rate.

WATER LEVEL READINGS IN PIEZOMETERS

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-1 Piez. Screen Depth: 5.5 to 25.5 (ft.)

Ground Surface Elev.: 140.14 (ft.) Top Casing Elev.: 143.48 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)	Remarks
7/18/90	13.38	Before development
"	13.35	3¼ hours after development
7/31/90	13.49	
8/14/90	13.61	

WATER LEVEL READINGS IN PIEZOMETERS

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-2 Piez. Screen Depth: 6 to 31 (ft.)

Ground Surface Elev.: 140.77 (ft.) Top Casing Elev.: 143.82 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)	Remarks
7/19/90	13.98	Before development
"	13.98	3¼ hours after development
7/31/90	14.10	
8/14/90	14.20	

WATER LEVEL READINGS IN PIEZOMETERS

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-3 Piez. Screen Depth: 4.5 to 19.5 (ft.)

Ground Surface Elev.: 136.14 (ft.) Top Casing Elev.: 139.36 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)	Remarks
7/18/90	9.68	Before development
"	9.72	2¾ hours after development
7/31/90	9.82	
8/14/90	10.00	

WATER LEVEL READINGS IN PIEZOMETERS

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-4 Piez. Screen Depth: 4 to 19 (ft.)

Ground Surface Elev.: 136.08 (ft.) Top Casing Elev.: 139.19 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)	Remarks
7/18/90	9.28	Before development
"	9.33	1½ hours after development
7/31/90	9.42	
8/14/90	9.62	

WATER LEVEL READINGS IN PIEZOMETERS

ELLIS I LANDFILL

TEXAS DEPARTMENT OF CORRECTIONS

JOB NO. 147-90

Piez. No.: P-5 Piez. Screen Depth: 9 to 34 (ft.)

Ground Surface Elev.: 142.28 (ft.) Top Casing Elev.: 146.13 (ft.)

Method of Water Level Measurement: Model 51453 Water Level Indicator

Date	Depth to Water Level Below Top of Casing (ft.)	Remarks
7/18/90	15.98	Before development
"	16.00	One hour after development
7/31/90	16.11	
8/14/90	16.24	

APPENDIX D

1994 SAMPLING EVENT ANALYTICAL RESULTS

Golder Associates Inc.

15603 W. Hardy Drive, Suite 345
Houston, TX USA 77060
Telephone (713) 931-8674
Fax (713) 931-3246

Golder Associates

October 6, 1994

943-4245

Pickett-Jacobs Consultants, Inc.
1609 South Chestnut, No. 107
Lufkin, Texas 75901

Attn: Mr. Dan Pickett

RE: GROUNDWATER SAMPLING OF EXISTING PIEZOMETERS AT TEXAS DEPARTMENT OF CRIMINAL JUSTICE ELLIS I LANDFILL, WALKER COUNTY, TEXAS

Mr. Pickett:

Pickett-Jacobs Consultants has been retained by the Texas Department of Criminal Justice (TDCJ) to sample groundwater from the existing piezometers at the Ellis I landfill located in Walker County, Texas. The groundwater sampling was conducted by Pickett-Jacobs' subcontractor Golder Associates Inc. on September 19, 1994.

The sampling was conducted by Mr. Jack E. Plitt and Rusty Hicks of Golder Associates' Houston, Texas office. Prior to initiating the sampling, groundwater elevations were measured from the top of PVC casing. Water level measurements were:

P-1	13.39' From top of casing
P-2	14.22' From top of casing
P-3	10.01' From top of casing
P-4	9.41' From top of casing
P-5	15.95' From top of casing

Between each usage, the Solinst water level indicator was decontaminated by cleaning with an Alconox solution and rinsing with deionized water. Additionally, each piezometer was checked with an organic vapor meter (OVM 580B) and no detectible organic vapors were detected.

Each piezometer was purged of three well volumes using dedicated PVC bailers. All purge waters were stored in 17-E, 55-gallon drums for subsequent disposal by TDCJ. Purge volumes were:

P-1	30 gallons
P-2	40 gallons
P-3	25 gallons
P-4	25 gallons
P-5	42 gallons

During purging, the pH and specific conductivity were measured approximately every 5 gallons. Stabilized readings were:

P-1	pH of 6.4	specific conductivity of 600 micromhos/cm
P-2	pH of 6.0	specific conductivity of 650 micromhos/cm
P-3	pH of 5.9	specific conductivity of 1400 micromhos/cm
P-4	pH of 5.8	specific conductivity of 1000 micromhos/cm
P-5	pH of 6.0	specific conductivity of 800 micromhos/cm

Samples from each piezometer were obtained with dedicated Teflon bailers. Prior to initiation of sampling, a field blank was prepared by pouring deionized water through the dedicated bailer from P-3. This field blank was submitted for volatile organic compound analysis. Similarly, a trip blank accompanied all sample containers and was also submitted for volatile organic compound analysis.

Sampling consisted of obtaining samples for Appendix IX analytes listed in +0 CFR Part 264. Analytes and analytical methods utilized were:

Antimony by ICP	SW-846 6010
Barium by ICP	SW-846 6010
Beryllium by ICP	SW-846 6010
Cadmium by ICP	SW-846 6010
Chromium by ICP	SW-846 6010
Cobalt by ICP	SW-846 6010
Copper by ICP	SW-846 6010
Mercury by cold vapor AA	SW-846 7470
Nickel by ICP	SW-846 6010
Silver by ICP	SW-846 6010
Tin by flame AA	SW-846 7870
Vanadium by ICP	SW-846 6010
Zinc by ICP	SW-846 6010
Arsenic by furnace AA	SW-846 7060
Lead by furnace AA	SW-846 7421
Selenium by furnace AA	SW-846 7740
Thallium by furnace AA	SW-846 7841
Appendix IX Semivolatiles	SW-846 8270
Appendix IX Volatiles	SW-846 8240
Appendix IX Herbicides	SW-846 8150
Appendix IX Phosphorous Pesticides	SW-846 8140
Appendix IX Chlorine Pesticides	SW-846 8080
Dioxins and Furans	SW-846 8280

Sulfides, Mid Level	EPA 376.1
Total Cyanide	SW-846 9010

Normal samples were obtained from all wells. A duplicate, matrix spike and matrix spike duplicate set was also collected from P-4 as part of the Quality Assurance/Quality control program. Samples were collected in the following containers with the indicated preservatives:

Metals	1000 ml, plastic with HNO_3
Volatiles	40 ml (2), glass with HCl
Semivolatiles	1000 ml (3), glass with $Na_2S_2O_3$
Organochlorine Pesticides	1000 ml (2), glass with $Na_2S_2O_3$
Organophosphate Pesticides	1000 ml (2), glass with $Na_2S_2O_3$
Herbicides	1000 ml (2), glass with $Na_2S_2O_3$
Sulfides	500 ml, glass with NaOH, ZnAc
Dioxins/furans	1000 ml (2), glass with $Na_2S_2O_3$
Cyanide	500 ml, Plastic with NaOH

Samples were placed in coolers with ice present prior to shipment to the analytical laboratory (Gulf States Analytical - Houston, Texas) to ensure that the samples were retained at a temperature of 4° C. A chain-of-custody form was prepared and accompanied the samples at all times. The analytical results from the sampling are attached. Analytical results indicate that no organic or inorganic constituents were identified at levels exceeding Maximum Concentration Levels (MCLs) listed in 40 CFR Parts 141 and 142.

At the conclusion of the program, the dedicated PVC and Teflon bailers were hung in each well and the wells locked.

If you have any questions or require further information, please do not hesitate to call.

Very truly yours,

GOLDER ASSOCIATES INC.

Jay A. Wint

Jay A. Winters, C.P.G.
Senior Geologist

cc: file

AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS
8134
JAY A. WINTERS
JAW 10-6-94

GULF STATES ANALYTICAL, INC.
6310 Rothway • Houston, Texas 77040
(713) 690-4444 • FAX (713) 690-5646

10/06/94

Mr. Jay A. Winters
Golder Associates Inc.
15603 W. Hardy Rd., Suite 345
Houston, TX 77060

Reference:
Project: TDCJ-Ellis 1
Project No.: 943-4245
Date Received: 09/20/94
GSAI Group: 13781

Dear Mr. Winters:

Enclosed are the analytical results for your above referenced project. The following samples are included in the report.

P1N
P5N
P3 MS
P3TB (Trip Blank)
P2N
P3N
P3 MSD
P4N
P3D DUP
P3EB (Equip. Blank)

The analyses for the Dioxins and Furans, and the Appendix IX Phosphorus were subcontracted to Quanterra Laboratory.

All holding times were met for the tests performed on these samples, exce for the following:

Sample - (Sample Date) Test Description	Expiration Date	Date Analyzed	Days Past Holding Time
P3 MS - (09/19/94)			
Total Cyanide, SW-846 Method	10/03/94	10/04/94	1
Cyanide Distillation - Water	10/03/94	10/04/94	1
P3 MSD - (09/19/94)			
Total Cyanide, SW-846 Method	10/03/94	10/04/94	1
Cyanide Distillation - Water	10/03/94	10/04/94	1

Our A2LA accreditation requires that, should this report be reproduced, it must be reproduced in total.

Enclosed please find the Quality Control Summary. All quality control results for the batch QC applicable to this sample(s) are acceptable.

If the report is acceptable, please approve the enclosed invoice and forward it for payment.

Thank you for selecting Gulf States Analytical, Inc. to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.

10/06/94

We look forward to working with you on future projects.

Sincerely yours,

Lora Dunlap
Project Manager

GULF STATES ANALYTICAL, INC.
6310 Rothway • Houston, Texas 77040
(713) 690-4444 • FAX (713) 690-5646

ANALYSIS SUMMARY REPORT

Golder Associates Inc.
15603 W. Hardy Rd., Suite 345
Houston, TX 77060

GSAI Group: 13781
Date Reported: 10/06/94
Date Received: 09/20/94

Attn: Mr. Jay A. Winters
Project: TDCJ-Ellis 1

Purchase Order:
Project No.: 943-4245

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74743 - 09/19/94 - P1N				
0269B	Tin by Flame AA, SW-846	ND	mg/l	0.80
1045B	Arsenic by Furnace AA	ND	mg/l	0.01
1055	Lead by Furnace AA	ND	mg/l	0.0050
1064B	Selenium by Furnace AA	ND	mg/l	0.02
1073B	Thallium by Furnace AA	ND	mg/l	0.05
0244A	Antimony by ICP	ND	mg/l	0.06
0246A	Barium by ICP	0.15	mg/l	0.10
0247A	Beryllium by ICP	ND	mg/l	0.005
0249A	Cadmium by ICP	ND	mg/l	0.005
0251A	Chromium by ICP	ND	mg/l	0.020
252A	Cobalt by ICP	ND	mg/l	0.025
53A	Copper by ICP	ND	mg/l	0.025
61A	Nickel by ICP	ND	mg/l	0.025
0266A	Silver by ICP	ND	mg/l	0.010
0271A	Vanadium by ICP	ND	mg/l	0.025
0272A	Zinc by ICP	ND	mg/l	0.040
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l	0.00050
0242A	Total Cyanide, SW-846 Method	ND	mg/l	0.02
5230	Sulfide, Mid Level	ND	mg/l	1
1316	Appendix IX Herbicides			
	2,4-D	ND	ug/l	0.96
	2,4,5-TP (Silvex)	ND	ug/l	0.48
	2,4,5-T	ND	ug/l	0.48
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	5
1320	Appendix IX Phosphorus Pesticides			
	Disulfoton	ND	ug/l	2.0
	Methyl parathion	ND	ug/l	0.2
	Parathion	ND	ug/l	0.3
	Famphur	ND	ug/l	0.5
	Phorate	ND	ug/l	1.5
1322	Appendix IX Chlorine Pesticides			
	Aldrin	ND	ug/l	0.03
	alpha-BHC	ND	ug/l	0.05
	beta-BHC	ND	ug/l	0.05
	delta-BHC	ND	ug/l	0.05
	gamma-BHC (Lindane)	ND	ug/l	0.05

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74743 - 09/19/94 - P1N				
1322	Appendix IX Chlorine Pesticides			
	Chlordane	ND	ug/l	0.5
	4,4'-DDT	ND	ug/l	0.1
	4,4'-DDE	ND	ug/l	0.1
	4,4'-DDD	ND	ug/l	0.1
	Dieldrin	ND	ug/l	0.1
	Endosulfan I	ND	ug/l	0.05
	Endosulfan II	ND	ug/l	0.1
	Endosulfan sulfate	ND	ug/l	0.1
	Endrin	ND	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	ND	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74743 - 09/19/94 - P1N				
1265	Appendix IX Volatiles			
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	ND	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
1309	Appendix IX Semivolatiles			
	Acenaphthene	ND	ug/l	10
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74743 - 09/19/94 - P1N				
1309	Appendix IX Semivolatiles			
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	ND	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	ND	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	ND	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74743 - 09/19/94 - P1N				
1309	Appendix IX Semivolatiles			
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	ND	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	ND	ug/l	50
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74743 - 09/19/94 - P1N				
1309	Appendix IX Semivolatiles			
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20
	Pentachlorophenol	ND	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	ND	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10
	Pyrene	ND	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	ND	ug/l	10
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Octachlorodibenzofurans	ND	ug/l	0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Total Dioxins and Furans	ND	ug/l	
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l	
Sample:74744 - 09/19/94 - P2N				
269B	Tin by Flame AA, SW-846	ND	mg/l	0.80

ANALYSIS SUMMARY REPORT

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74744 - 09/19/94 - P2N				
1045B	Arsenic by Furnace AA	ND	mg/l	0.01
1055	Lead by Furnace AA	ND	mg/l	0.0050
1064B	Selenium by Furnace AA	ND	mg/l	0.02
1073B	Thallium by Furnace AA	ND	mg/l	0.05
0244A	Antimony by ICP	ND	mg/l	0.06
0246A	Barium by ICP	0.19	mg/l	0.10
0247A	Beryllium by ICP	ND	mg/l	0.005
0249A	Cadmium by ICP	ND	mg/l	0.005
0251A	Chromium by ICP	ND	mg/l	0.020
0252A	Cobalt by ICP	ND	mg/l	0.025
0253A	Copper by ICP	ND	mg/l	0.025
0261A	Nickel by ICP	ND	mg/l	0.025
0266A	Silver by ICP	ND	mg/l	0.010
0271A	Vanadium by ICP	ND	mg/l	0.025
0272A	Zinc by ICP	ND	mg/l	0.060
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l	0.00050
0242A	Total Cyanide, SW-846 Method	ND	mg/l	0.02
230	Sulfide, Mid Level	ND	mg/l	1
16	Appendix IX Herbicides			
	2,4-D	4.90	ug/l	0.96
	2,4,5-TP (Silvex)	ND	ug/l	0.48
	2,4,5-T	ND	ug/l	0.48
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	5
1320	Appendix IX Phosphorus Pesticides			
	Disulfoton	ND	ug/l	2.0
	Methyl parathion	ND	ug/l	0.2
	Parathion	ND	ug/l	0.3
	Famphur	ND	ug/l	0.5
	Phorate	ND	ug/l	1.5
1322	Appendix IX Chlorine Pesticides			
	Aldrin	ND	ug/l	0.03
	alpha-BHC	ND	ug/l	0.05
	beta-BHC	ND	ug/l	0.05
	delta-BHC	ND	ug/l	0.05
	gamma-BHC (Lindane)	ND	ug/l	0.05
	Chlordane	ND	ug/l	0.5
	4,4'-DDT	ND	ug/l	0.1
	4,4'-DDE	ND	ug/l	0.1
	4,4'-DDD	ND	ug/l	0.1
	Dieldrin	ND	ug/l	0.1
	Endosulfan I	ND	ug/l	0.05
	Endosulfan II	ND	ug/l	0.1
	Endosulfan sulfate	ND	ug/l	0.1

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74744 - 09/19/94 - P2N				
1322	Appendix IX Chlorine Pesticides			
	Endrin	ND	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	ND	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74744 - 09/19/94 - P2N				
1265	Appendix IX Volatiles			
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	ND	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
1309	Appendix IX Semivolatiles			
	Acenaphthene	ND	ug/l	10
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74744 - 09/19/94 - P2N				
1309	Appendix IX Semivolatiles			
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	ND	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	ND	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	ND	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	ND	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20

ANALYSIS SUMMARY REPORT

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74744 - 09/19/94 - P2N				
1309	Appendix IX Semivolatiles			
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	ND	ug/l	50
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	ND	ug/l	10
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74744 - 09/19/94 - P2N				
1309	Appendix IX Semivolatiles			
	Pentachlorophenol	ND	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	ND	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10
	Pyrene	ND	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	ND	ug/l	10
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Octachlorodibenzofurans	ND	ug/l	0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Total Dioxins and Furans	ND	ug/l	
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l	
Sample:74745 - 09/19/94 - P4N				
0269B	Tin by Flame AA, SW-846	ND	mg/l	0.80
1045B	Arsenic by Furnace AA	0.01	mg/l	0.01
1055	Lead by Furnace AA	ND	mg/l	0.0050
1064B	Selenium by Furnace AA	ND	mg/l	0.02
1073B	Thallium by Furnace AA	ND	mg/l	0.05
0244A	Antimony by ICP	ND	mg/l	0.06
0246A	Barium by ICP	0.34	mg/l	0.10
0247A	Beryllium by ICP	ND	mg/l	0.005

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74745 - 09/19/94 - P4N				
0249A	Cadmium by ICP	ND	mg/l	0.005
0251A	Chromium by ICP	ND	mg/l	0.020
0252A	Cobalt by ICP	ND	mg/l	0.025
0253A	Copper by ICP	ND	mg/l	0.025
0261A	Nickel by ICP	ND	mg/l	0.025
0266A	Silver by ICP	ND	mg/l	0.010
0271A	Vanadium by ICP	ND	mg/l	0.025
0272A	Zinc by ICP	0.044	mg/l	0.040
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l	0.00050
0242A	Total Cyanide, SW-846 Method	ND	mg/l	0.02
5230	Sulfide, Mid Level	ND	mg/l	1
1316	Appendix IX Herbicides			
	2,4-D	ND	ug/l	0.96
	2,4,5-TP (Silvex)	ND	ug/l	0.48
	2,4,5-T	ND	ug/l	0.48
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	5
1320	Appendix IX Phosphorus Pesticides			
	Disulfoton	ND	ug/l	2.0
	Methyl parathion	ND	ug/l	0.2
	Parathion	ND	ug/l	0.3
	Famphur	ND	ug/l	0.5
	Phorate	ND	ug/l	1.5
1322	Appendix IX Chlorine Pesticides			
	Aldrin	ND	ug/l	0.03
	alpha-BHC	ND	ug/l	0.05
	beta-BHC	ND	ug/l	0.05
	delta-BHC	ND	ug/l	0.05
	gamma-BHC (Lindane)	ND	ug/l	0.05
	Chlordane	ND	ug/l	0.5
	4,4'-DDT	ND	ug/l	0.1
	4,4'-DDE	ND	ug/l	0.1
	4,4'-DDD	ND	ug/l	0.1
	Dieldrin	ND	ug/l	0.1
	Endosulfan I	ND	ug/l	0.05
	Endosulfan II	ND	ug/l	0.1
	Endosulfan sulfate	ND	ug/l	0.1
	Endrin	ND	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	ND	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74745 - 09/19/94 - P4N				
1322	Appendix IX Chlorine Pesticides			
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74745 - 09/19/94 - P4N				
1265	Appendix IX Volatiles			
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	ND	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
1309	Appendix IX Semivolatiles			
	Acenaphthene	ND	ug/l	10.
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74745 - 09/19/94 - P4N				
1309	Appendix IX Semivolatiles			
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	ND	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	ND	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	ND	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	ND	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74745 - 09/19/94 - P4N				
1309	Appendix IX Semivolatiles			
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	ND	ug/l	50
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	ND	ug/l	10
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20
	Pentachlorophenol	ND	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	ND	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74745 - 09/19/94 - P4N				
1309	Appendix IX Semivolatiles			
	Pyrene	ND	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	ND	ug/l	10
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Octachlorodibenzofurans	ND	ug/l	0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Total Dioxins and Furans	ND	ug/l	
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l	
Sample:74746 - 09/19/94 - P5N				
0269B	Tin by Flame AA, SW-846	ND	mg/l	0.80
1045B	Arsenic by Furnace AA	0.01	mg/l	0.01
1055	Lead by Furnace AA	0.0059	mg/l	0.0050
1064B	Selenium by Furnace AA	ND	mg/l	0.02
1073B	Thallium by Furnace AA	ND	mg/l	0.05
0244A	Antimony by ICP	ND	mg/l	0.06
0246A	Barium by ICP	0.21	mg/l	0.10
0247A	Beryllium by ICP	ND	mg/l	0.005
0249A	Cadmium by ICP	ND	mg/l	0.005
0251A	Chromium by ICP	ND	mg/l	0.020
0252A	Cobalt by ICP	ND	mg/l	0.025
0253A	Copper by ICP	ND	mg/l	0.025
0261A	Nickel by ICP	ND	mg/l	0.025
0266A	Silver by ICP	ND	mg/l	0.010
0271A	Vanadium by ICP	ND	mg/l	0.025

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74746 - 09/19/94 - P5N				
0272A	Zinc by ICP	0.051	mg/l	0.040
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l	0.00050
0242A	Total Cyanide, SW-846 Method	ND	mg/l	0.02
5230	Sulfide, Mid Level	ND	mg/l	1
1316	Appendix IX Herbicides			
	2,4-D	ND	ug/l	0.96
	2,4,5-TP (Silvex)	ND	ug/l	0.48
	2,4,5-T	ND	ug/l	0.48
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	5
1320	Appendix IX Phosphorus Pesticides			
	Disulfoton	ND	ug/l	2.0
	Methyl parathion	ND	ug/l	0.2
	Parathion	ND	ug/l	0.3
	Famphur	ND	ug/l	0.5
	Phorate	ND	ug/l	1.5
1322	Appendix IX Chlorine Pesticides			
	Aldrin	ND	ug/l	0.03
	alpha-BHC	ND	ug/l	0.05
	beta-BHC	ND	ug/l	0.05
	delta-BHC	ND	ug/l	0.05
	gamma-BHC (Lindane)	ND	ug/l	0.05
	Chlordane	ND	ug/l	0.5
	4,4'-DDT	ND	ug/l	0.1
	4,4'-DDE	ND	ug/l	0.1
	4,4'-DDD	ND	ug/l	0.1
	Dieldrin	ND	ug/l	0.1
	Endosulfan I	ND	ug/l	0.05
	Endosulfan II	ND	ug/l	0.1
	Endosulfan sulfate	ND	ug/l	0.1
	Endrin	ND	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	ND	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74746 - 09/19/94 - P5N				
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74746 - 09/19/94 - P5N				
1265	Appendix IX Volatiles			
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	ND	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
1309	Appendix IX Semivolatiles			
	Acenaphthene	ND	ug/l	10
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	ND	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	ND	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74746 - 09/19/94 - P5N				
1309	Appendix IX Semivolatiles			
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	ND	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	ND	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74746 - 09/19/94 - P5N				
1309	Appendix IX Semivolatiles			
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	ND	ug/l	50
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	ND	ug/l	10
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20
	Pentachlorophenol	ND	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	ND	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10
	Pyrene	ND	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74746 - 09/19/94 - P5N				
1309	Appendix IX Semivolatiles			
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Octachlorodibenzofurans	ND	ug/l	0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Total Dioxins and Furans	ND	ug/l	
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l	
Sample:74747 - 09/19/94 - P3N				
0269B	Tin by Flame AA, SW-846	ND	mg/l	0.80
1045B	Arsenic by Furnace AA	ND	mg/l	0.01
1055	Lead by Furnace AA	ND	mg/l	0.0050
1064B	Selenium by Furnace AA	ND	mg/l	0.02
1073B	Thallium by Furnace AA	ND	mg/l	0.05
0244A	Antimony by ICP	ND	mg/l	0.06
0246A	Barium by ICP	0.23	mg/l	0.10
0247A	Beryllium by ICP	ND	mg/l	0.005
0249A	Cadmium by ICP	ND	mg/l	0.005
0251A	Chromium by ICP	ND	mg/l	0.020
0252A	Cobalt by ICP	ND	mg/l	0.025
0253A	Copper by ICP	ND	mg/l	0.025
0261A	Nickel by ICP	ND	mg/l	0.025
0266A	Silver by ICP	ND	mg/l	0.010
0271A	Vanadium by ICP	ND	mg/l	0.025
0272A	Zinc by ICP	0.078	mg/l	0.040
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l	0.00050
0242A	Total Cyanide, SW-846 Method	ND	mg/l	0.02
5230	Sulfide, Mid Level	ND	mg/l	1
1316	Appendix IX Herbicides			
	2,4-D	ND	ug/l	0.96
	2,4,5-TP (Silvex)	ND	ug/l	0.48
	2,4,5-T	ND	ug/l	0.48

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74747 - 09/19/94 - P3N				
1316	Appendix IX Herbicides			
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	5
1320	Appendix IX Phosphorus Pesticides			
	Disulfoton	ND	ug/l	2.0
	Methyl parathion	ND	ug/l	0.2
	Parathion	ND	ug/l	0.3
	Famphur	ND	ug/l	0.5
	Phorate	ND	ug/l	1.5
1322	Appendix IX Chlorine Pesticides			
	Aldrin	ND	ug/l	0.03
	alpha-BHC	ND	ug/l	0.05
	beta-BHC	ND	ug/l	0.05
	delta-BHC	ND	ug/l	0.05
	gamma-BHC (Lindane)	ND	ug/l	0.05
	Chlordane	ND	ug/l	0.5
	4,4'-DDT	ND	ug/l	0.1
	4,4'-DDE	ND	ug/l	0.1
	4,4'-DDD	ND	ug/l	0.1
	Dieldrin	ND	ug/l	0.1
	Endosulfan I	ND	ug/l	0.05
	Endosulfan II	ND	ug/l	0.1
	Endosulfan sulfate	ND	ug/l	0.1
	Endrin	ND	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	ND	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74747 - 09/19/94 - P3N				
1265	Appendix IX Volatiles			
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74747 - 09/19/94 - P3N				
1265	Appendix IX Volatiles			
	Trichloroethene	ND	ug/l	5
	Trichlorofluoromethane	5	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
1309	Appendix IX Semivolatiles			
	Acenaphthene	ND	ug/l	10
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	ND	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	ND	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74747 - 09/19/94 - P3N				
1309	Appendix IX Semivolatiles			
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	ND	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	ND	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74747 - 09/19/94 - P3N				
1309	Appendix IX Semivolatiles			
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	ND	ug/l	50
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	ND	ug/l	10
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20
	Pentachlorophenol	ND	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	ND	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10
	Pyrene	ND	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	ND	ug/l	10
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74747 - 09/19/94 - P3N				
2795A	Dioxins and Furans			
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Octachlorodibenzofurans	ND	ug/l	0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Total Dioxins and Furans	ND	ug/l	
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l	
Sample:74748 - 09/19/94 - P3D DUP				
0269B	Tin by Flame AA, SW-846	ND	mg/l	0.80
1045B	Arsenic by Furnace AA	0.02	mg/l	0.01
1055	Lead by Furnace AA	0.0094	mg/l	0.0050
1064B	Selenium by Furnace AA	ND	mg/l	0.02
73B	Thallium by Furnace AA	ND	mg/l	0.05
44A	Antimony by ICP	ND	mg/l	0.06
0246A	Barium by ICP	0.28	mg/l	0.10
0247A	Beryllium by ICP	ND	mg/l	0.005
0249A	Cadmium by ICP	ND	mg/l	0.005
0251A	Chromium by ICP	0.022	mg/l	0.020
0252A	Cobalt by ICP	ND	mg/l	0.025
0253A	Copper by ICP	ND	mg/l	0.025
0261A	Nickel by ICP	0.026	mg/l	0.025
0266A	Silver by ICP	ND	mg/l	0.010
0271A	Vanadium by ICP	0.038	mg/l	0.025
0272A	Zinc by ICP	0.092	mg/l	0.040
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l	0.00050
0242A	Total Cyanide, SW-846 Method	ND	mg/l	0.02
5230	Sulfide, Mid Level	ND	mg/l	1
1316	Appendix IX Herbicides			
	2,4-D	ND	ug/l	0.96
	2,4,5-TP (Silvex)	ND	ug/l	0.48
	2,4,5-T	ND	ug/l	0.48
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	5
1320	Appendix IX Phosphorus Pesticides			
	Disulfoton	ND	ug/l	2.0
	Methyl parathion	ND	ug/l	0.2
	Parathion	ND	ug/l	0.3
	Famphur	ND	ug/l	0.5

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74748 - 09/19/94 - P3D DUP				
1320	Appendix IX Phosphorus Pesticides			
	Phorate	ND	ug/l	1.5
1322	Appendix IX Chlorine Pesticides			
	Aldrin	ND	ug/l	0.03
	alpha-BHC	ND	ug/l	0.05
	beta-BHC	ND	ug/l	0.05
	delta-BHC	ND	ug/l	0.05
	gamma-BHC (Lindane)	ND	ug/l	0.05
	Chlordane	ND	ug/l	0.5
	4,4'-DDT	ND	ug/l	0.1
	4,4'-DDE	ND	ug/l	0.1
	4,4'-DDD	ND	ug/l	0.1
	Dieldrin	ND	ug/l	0.1
	Endosulfan I	ND	ug/l	0.05
	Endosulfan II	ND	ug/l	0.1
	Endosulfan sulfate	ND	ug/l	0.1
	Endrin	ND	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	ND	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74748 - 09/19/94 - P3D DUP				
1265	Appendix IX Volatiles			
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	ND	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5

ANALYSIS SUMMARY REPORT

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74748 - 09/19/94 - P3D DUP				
1309	Appendix IX Semivolatiles			
	Acenaphthene	ND	ug/l	10
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	ND	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	ND	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	ND	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74748 - 09/19/94 - P3D DUP				
1309	Appendix IX Semivolatiles			
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	ND	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	ND	ug/l	50

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74748 - 09/19/94 - P3D DUP				
1309	Appendix IX Semivolatiles			
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	ND	ug/l	10
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20
	Pentachlorophenol	ND	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	ND	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10
	Pyrene	ND	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	ND	ug/l	10
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005

ANALYSIS SUMMARY REPORT

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units		Limit of Quantitation
Sample:74748 - 09/19/94 - P3D DUP					
2795A	Dioxins and Furans				
	Octachlorodibenzofurans	ND	ug/l		0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l		0.00005
	Total Dioxins and Furans	ND	ug/l		
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l		
Sample:74749 - 09/19/94 - P3 MS					
0269B	Tin by Flame AA, SW-846	7.67	mg/l	(1)	0.80
1045B	Arsenic by Furnace AA	0.05	mg/l	(2)	0.01
1055	Lead by Furnace AA	0.0141	mg/l	(3)	0.0050
1064B	Selenium by Furnace AA	ND	mg/l		0.005
1073B	Thallium by Furnace AA	0.01	mg/l		0.01
0244A	Antimony by ICP	0.32	mg/l	(4)	0.06
0246A	Barium by ICP	1.98	mg/l	(5)	0.10
0247A	Beryllium by ICP	0.048	mg/l	(6)	0.005
0249A	Cadmium by ICP	0.044	mg/l	(7)	0.005
0251A	Chromium by ICP	0.216	mg/l	(8)	0.020
0252A	Cobalt by ICP	0.428	mg/l	(9)	0.025
53A	Copper by ICP	0.247	mg/l	(10)	0.025
1A	Nickel by ICP	0.426	mg/l	(11)	0.025
0266A	Silver by ICP	0.047	mg/l	(12)	0.010
0271A	Vanadium by ICP	0.433	mg/l	(13)	0.025
0272A	Zinc by ICP	0.480	mg/l	(14)	0.040
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l		0.00050
0242A	Total Cyanide, SW-846 Method	0.10	mg/l		0.02
5230	Sulfide, Mid Level	14	mg/l		1
1316	Appendix IX Herbicides				
	2,4-D	1.12	ug/l		0.96
	2,4,5-TP (Silvex)	1.01	ug/l		0.48
	2,4,5-T	1.12	ug/l		0.48
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l		5
1320	Appendix IX Phosphorus Pesticides				
	Disulfoton	ND	ug/l		2.0
	Methyl parathion	ND	ug/l		0.2
	Parathion	ND	ug/l		0.3
	Famphur	ND	ug/l		0.5
	Phorate	ND	ug/l		1.5
1322	Appendix IX Chlorine Pesticides				
	Aldrin	0.52	ug/l		0.03
	alpha-BHC	ND	ug/l		0.05
	beta-BHC	ND	ug/l		0.05
	delta-BHC	ND	ug/l		0.05
	gamma-BHC (Lindane)	0.49	ug/l		0.05

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74749 - 09/19/94 - P3 MS				
1322	Appendix IX Chlorine Pesticides			
	Chlordane	ND	ug/l	0.5
	4,4'-DDT	0.8	ug/l	0.1
	4,4'-DDE	ND	ug/l	0.1
	4,4'-DDD	ND	ug/l	0.1
	Dieldrin	1.0	ug/l	0.1
	Endosulfan I	ND	ug/l	0.05
	Endosulfan II	ND	ug/l	0.1
	Endosulfan sulfate	ND	ug/l	0.1
	Endrin	1.2	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	0.49	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	47	ug/l	(15) 5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	49	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74749 - 09/19/94 - P3 MS				
1265	Appendix IX Volatiles			
	1,1-Dichloroethene	39	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	48	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	50	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
1309	Appendix IX Semivolatiles			
	Acenaphthene	103	ug/l	(16) 10
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74749 - 09/19/94 - P3 MS				
1309	Appendix IX Semivolatiles			
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	124	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	81	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	88	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74749 - 09/19/94 - P3 MS				
1309	Appendix IX Semivolatiles			
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	95	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	55	ug/l	50
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	88	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74749 - 09/19/94 - P3 MS				
1309	Appendix IX Semivolatiles			
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20
	Pentachlorophenol	118	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	46	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10
	Pyrene	93	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	95	ug/l	10
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Octachlorodibenzofurans	ND	ug/l	0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Total Dioxins and Furans	ND	ug/l	
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l	
Sample:74750 - 09/19/94 - P3 MSD				
269B	Tin by Flame AA, SW-846	7.51	mg/l	(17) 0.80

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation	
Sample:74750 - 09/19/94 - P3 MSD					
1045B	Arsenic by Furnace AA	0.05	mg/l	(18)	0.01
1055	Lead by Furnace AA	0.0263	mg/l	(19)	0.0050
1064B	Selenium by Furnace AA	ND	mg/l		0.005
1073B	Thallium by Furnace AA	ND	mg/l		0.01
0244A	Antimony by ICP	0.32	mg/l	(20)	0.06
0246A	Barium by ICP	2.01	mg/l	(21)	0.10
0247A	Beryllium by ICP	0.047	mg/l	(22)	0.005
0249A	Cadmium by ICP	0.046	mg/l	(23)	0.005
0251A	Chromium by ICP	0.223	mg/l	(24)	0.020
0252A	Cobalt by ICP	0.433	mg/l	(25)	0.025
0253A	Copper by ICP	0.254	mg/l	(26)	0.025
0261A	Nickel by ICP	0.438	mg/l	(27)	0.025
0266A	Silver by ICP	0.046	mg/l	(28)	0.010
0271A	Vanadium by ICP	0.443	mg/l	(29)	0.025
0272A	Zinc by ICP	0.524	mg/l	(30)	0.040
0259B	Mercury by Cold Vapor AA, SW-846	ND	mg/l		0.00050
0242A	Total Cyanide, SW-846 Method	0.10	mg/l		0.02
5230	Sulfide, Mid Level	15	mg/l		1
316	Appendix IX Herbicides				
	2,4-D	1.08	ug/l		0.96
	2,4,5-TP (Silvex)	0.91	ug/l		0.48
	2,4,5-T	1.03	ug/l		0.48.
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l		5
1320	Appendix IX Phosphorus Pesticides				
	Disulfoton	ND	ug/l		2.0
	Methyl parathion	ND	ug/l		0.2
	Parathion	ND	ug/l		0.3
	Famphur	ND	ug/l		0.5
	Phorate	ND	ug/l		1.5
1322	Appendix IX Chlorine Pesticides				
	Aldrin	0.60	ug/l		0.03
	alpha-BHC	ND	ug/l		0.05
	beta-BHC	ND	ug/l		0.05
	delta-BHC	ND	ug/l		0.05
	gamma-BHC (Lindane)	0.50	ug/l		0.05
	Chlordane	ND	ug/l		0.5
	4,4'-DDT	0.9	ug/l		0.1
	4,4'-DDE	ND	ug/l		0.1
	4,4'-DDD	ND	ug/l		0.1
	Dieldrin	1.1	ug/l		0.1
	Endosulfan I	ND	ug/l		0.05
	Endosulfan II	ND	ug/l		0.1
	Endosulfan sulfate	ND	ug/l		0.1

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74750 - 09/19/94 - P3 MSD				
1322	Appendix IX Chlorine Pesticides			
	Endrin	1.2	ug/l	0.1
	Endrin aldehyde	ND	ug/l	0.1
	Heptachlor	0.50	ug/l	0.05
	Heptachlor epoxide	ND	ug/l	0.05
	Kepone	ND	ug/l	2.5
	Methoxychlor	ND	ug/l	0.5
	Aroclor-1016	ND	ug/l	0.5
	Aroclor-1221	ND	ug/l	0.5
	Aroclor-1232	ND	ug/l	0.5
	Aroclor-1242	ND	ug/l	0.5
	Aroclor-1248	ND	ug/l	0.5
	Aroclor-1254	ND	ug/l	1.0
	Aroclor-1260	ND	ug/l	1.0
	Toxaphene	ND	ug/l	1.0
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	46	ug/l	(31) 5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	48	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	39	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74750 - 09/19/94 - P3 MSD				
1265	Appendix IX Volatiles			
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	46	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	50	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
1309	Appendix IX Semivolatiles			
	Acenaphthene	108	ug/l	(32) 10
	Acenaphthylene	ND	ug/l	10
	Acetophenone	ND	ug/l	10
	2-Acetylaminofluorene	ND	ug/l	20
	4-Aminobiphenyl	ND	ug/l	10
	Aniline	ND	ug/l	10
	Anthracene	ND	ug/l	10
	Aramite	ND	ug/l	50
	Benzo(a)anthracene	ND	ug/l	10
	Benzo(b)fluoranthene	ND	ug/l	10
	Benzo(k)fluoranthene	ND	ug/l	10
	Benzo(ghi)perylene	ND	ug/l	10
	Benzo(a)pyrene	ND	ug/l	10
	Benzyl alcohol	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc.

GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74750 - 09/19/94 - P3 MSD				
1309	Appendix IX Semivolatiles			
	bis(2-Chloroethoxy)methane	ND	ug/l	10
	bis(2-Chloroethyl)ether	ND	ug/l	10
	2,2'-Dichlorodiisopropyl ether	ND	ug/l	10
	bis(2-Ethylhexyl)phthalate	ND	ug/l	10
	4-Bromophenyl-phenylether	ND	ug/l	10
	Butylbenzyl phthalate	ND	ug/l	10
	4-Chloroaniline	ND	ug/l	10
	Chlorobenzilate	ND	ug/l	20
	4-Chloro-3-methylphenol	165	ug/l	10
	2-Chloronaphthalene	ND	ug/l	10
	2-Chlorophenol	158	ug/l	10
	4-Chlorophenyl-phenylether	ND	ug/l	10
	Chrysene	ND	ug/l	10
	o-Cresol (2-Methylphenol)	ND	ug/l	10
	m-Cresol (3-Methylphenol)	ND	ug/l	10
	p-Cresol (4-Methylphenol)	ND	ug/l	10
	Diallate	ND	ug/l	50
	Dibenzofuran	ND	ug/l	10
	Di-n-butyl phthalate	ND	ug/l	10
	Dibenzo(a,h)anthracene	ND	ug/l	10
	1,2-Dichlorobenzene	ND	ug/l	10
	1,3-Dichlorobenzene	ND	ug/l	10
	1,4-Dichlorobenzene	87	ug/l	10
	3,3'-Dichlorobenzidine	ND	ug/l	20
	2,4-Dichlorophenol	ND	ug/l	10
	2,6-Dichlorophenol	ND	ug/l	10
	Diethylphthalate	ND	ug/l	10
	Thionazin	ND	ug/l	20
	Dimethoate	ND	ug/l	20
	p-(Dimethylamino)azobenzene	ND	ug/l	10
	7,12-Dimethylbenz(a)anthracene	ND	ug/l	50
	3,3'-Dimethylbenzidine	ND	ug/l	10
	a,a-Dimethylphenethylamine	ND	ug/l	30
	2,4-Dimethylphenol	ND	ug/l	20
	Dimethylphthalate	ND	ug/l	10
	1,3-Dinitrobenzene	ND	ug/l	10
	4,6-Dinitro-o-cresol	ND	ug/l	50
	2,4-Dinitrophenol	ND	ug/l	50
	2,4-Dinitrotoluene	99	ug/l	10
	2,6-Dinitrotoluene	ND	ug/l	10
	Di-n-octyl phthalate	ND	ug/l	10
	2-sec-Butyl-4,6-dinitrophenol (Dino	ND	ug/l	20

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74750 - 09/19/94 - P3 MSD				
1309	Appendix IX Semivolatiles			
	Diphenylamine	ND	ug/l	10
	Ethylmethanesulfonate	ND	ug/l	10
	Fluoranthene	ND	ug/l	10
	Fluorene	ND	ug/l	10
	Hexachlorobenzene	ND	ug/l	10
	Hexachloro-1,3-butadiene	ND	ug/l	10
	Hexachlorocyclopentadiene	ND	ug/l	70
	Hexachloroethane	ND	ug/l	10
	Hexachlorophene	ND	ug/l	120
	Hexachloropropene	ND	ug/l	10
	Indeno(1,2,3-cd)pyrene	ND	ug/l	10
	Isodrin	ND	ug/l	20
	Isophorone	ND	ug/l	10
	Isosafrole	ND	ug/l	10
	Methapyrilene	ND	ug/l	10
	3-Methylcholanthrene	ND	ug/l	10
	Methylmethanesulfonate	ND	ug/l	10
	2-Methylnaphthalene	ND	ug/l	10
	Naphthalene	ND	ug/l	10
	1,4-Naphthoquinone	ND	ug/l	20
	1-Naphthylamine	ND	ug/l	10
	2-Naphthylamine	ND	ug/l	10
	2-Nitroaniline	ND	ug/l	50
	3-Nitroaniline	ND	ug/l	50
	4-Nitroaniline	ND	ug/l	50
	Nitrobenzene	ND	ug/l	10
	2-Nitrophenol	ND	ug/l	10
	4-Nitrophenol	98	ug/l	50
	4-Nitroquinoline-1-oxide	ND	ug/l	60
	N-Nitrosodi-n-butylamine	ND	ug/l	10
	N-Nitrosodiethylamine	ND	ug/l	10
	N-Nitrosodimethylamine	ND	ug/l	10
	N-Nitrosodiphenylamine	ND	ug/l	10
	N-Nitrosodi-n-propylamine	93	ug/l	10
	N-Nitrosomethylethylamine	ND	ug/l	10
	N-Nitrosomorpholine	ND	ug/l	10
	N-Nitrosopiperidine	ND	ug/l	20
	N-Nitrosopyrrolidine	ND	ug/l	20
	5-Nitro-o-toluidine	ND	ug/l	10
	Pentachlorobenzene	ND	ug/l	10
	Pentachloronitrobenzene	ND	ug/l	50
	Pentachloroethane	ND	ug/l	20

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74750 - 09/19/94 - P3 MSD				
1309	Appendix IX Semivolatiles			
	Pentachlorophenol	157	ug/l	70
	Phenacetin	ND	ug/l	20
	Phenanthrene	ND	ug/l	10
	Phenol	83	ug/l	10
	p-Phenylenediamine	ND	ug/l	10
	2-Picoline	ND	ug/l	10
	Pronamide	ND	ug/l	10
	Pyrene	92	ug/l	10
	Pyridine	ND	ug/l	10
	Safrole	ND	ug/l	10
	1,2,4,5-Tetrachlorobenzene	ND	ug/l	10
	2,3,4,6-Tetrachlorophenol	ND	ug/l	50
	Tetraethyldithiopyrophosphate	ND	ug/l	50
	o-Toluidine	ND	ug/l	10
	1,2,4-Trichlorobenzene	95	ug/l	10
	2,4,5-Trichlorophenol	ND	ug/l	10
	2,4,6-Trichlorophenol	ND	ug/l	10
	o,o,o-Triethylphosphorothioate	ND	ug/l	50
	sym-Trinitrobenzene	ND	ug/l	20
2795A	Dioxins and Furans			
	Tetrachlorodibenzofurans	ND	ug/l	0.00005
	Tetrachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Pentachlorodibenzofurans	ND	ug/l	0.00005
	Pentachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Hexachlorodibenzofurans	ND	ug/l	0.00005
	Hexachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Heptachlorodibenzofurans	ND	ug/l	0.00005
	Heptachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Octachlorodibenzofurans	ND	ug/l	0.00005
	Octachlorodibenzo-p-dioxins	ND	ug/l	0.00005
	Total Dioxins and Furans	ND	ug/l	
	Total 2,3,7,8-TCDD Toxicity Equival	ND	ug/l	
Sample:74751 - 09/19/94 - P3EB (Equip. Blank)				
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5
	Bromodichloromethane	ND	ug/l	5

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74751 - 09/19/94 - P3EB (Equip. Blank)				
1265	Appendix IX Volatiles			
	Bromoform	ND	ug/l	5.
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	ND	ug/l	5

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74751 - 09/19/94 - P3EB (Equip. Blank)				
1265	Appendix IX Volatiles			
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5
Sample:74752 - 09/19/94 - P3TB (Trip Blank)				
1265	Appendix IX Volatiles			
	Acetone	ND	ug/l	20
	Acetonitrile	ND	ug/l	50
	Acrolein	ND	ug/l	60
	Acrylonitrile	ND	ug/l	90
	Allyl chloride (3-Chloropropene)	ND	ug/l	40
	Benzene	ND	ug/l	5
	Bromodichloromethane	ND	ug/l	5
	Bromoform	ND	ug/l	5
	Carbon disulfide	ND	ug/l	5
	Carbon tetrachloride	ND	ug/l	5
	Chlorobenzene	ND	ug/l	5
	Chloroethane (Ethyl Chloride)	ND	ug/l	10
	Chloroform	ND	ug/l	5
	2-Chloro-1,3-butadiene (Chloroprene	ND	ug/l	50
	Chlorodibromomethane	ND	ug/l	5
	1,2-Dibromo-3-chloropropane (DBCP)	ND	ug/l	5
	Ethylene dibromide (EDB)	ND	ug/l	5
	trans-1,4-Dichloro-2-butene	ND	ug/l	10
	Dichlorodifluoromethane	ND	ug/l	10
	1,1-Dichloroethene	ND	ug/l	10
	1,2-Dichloroethane	ND	ug/l	5
	1,1-Dichloroethane	ND	ug/l	5
	trans-1,2-Dichloroethene	ND	ug/l	5
	1,2-Dichloropropane	ND	ug/l	5
	cis-1,3-Dichloropropene	ND	ug/l	5
	trans-1,3-Dichloropropene	ND	ug/l	5
	1,4-Dioxane	ND	ug/l	200
	Ethylbenzene	ND	ug/l	5
	Ethyl methacrylate	ND	ug/l	5
	2-Hexanone	ND	ug/l	10
	Isobutanol (2-Methyl-1-propanol)	ND	ug/l	100
	Methacrylonitrile	ND	ug/l	20
	Bromomethane (Methyl bromide)	ND	ug/l	10
	Chloromethane (Methyl Chloride)	ND	ug/l	10

ANALYSIS SUMMARY REPORT

Golder Associates Inc. GSAI Group: 13781

Test	Analysis	Results as Received	Units	Limit of Quantitation
Sample:74752 - 09/19/94 - P3TB (Trip Blank)				
1265	Appendix IX Volatiles			
	Dibromomethane (methylene bromide)	ND	ug/l	10
	Dichloromethane (Methylene chloride	ND	ug/l	5
	2-Butanone (MEK)	ND	ug/l	20
	Iodomethane (Methyl iodide)	ND	ug/l	5
	Methyl methacrylate	ND	ug/l	5
	4-Methyl-2-pentanone (MIBK)	ND	ug/l	10
	Propionitrile	ND	ug/l	100
	Styrene	ND	ug/l	5
	1,1,1,2-Tetrachloroethane	ND	ug/l	5
	1,1,2,2-Tetrachloroethane	ND	ug/l	5
	Tetrachloroethene	ND	ug/l	5
	Toluene	ND	ug/l	5
	1,1,1-Trichloroethane	ND	ug/l	5
	1,1,2-Trichloroethane	ND	ug/l	5
	Trichloroethene	ND	ug/l	5
	Trichlorofluoromethane	ND	ug/l	5
	1,2,3-Trichloropropane	ND	ug/l	5
	Vinyl acetate	ND	ug/l	20
	Vinyl chloride	ND	ug/l	10
	Xylene (total)	ND	ug/l	5

(1) Spiked with 8.0 MG/L

(2) Spiked with 40.0 ug/l

(3) SPIKED WITH 20.0 ppb Pb.

(4) SPIKED WITH 0.5 ppm Sb.

(5) SPIKED WITH 2.0 ppm Ba.

(6) SPIKED WITH 0.05 ppm Be.

(7) SPIKED WITH 0.05 ppm Cd.

(8) SPIKED WITH 0.2 ppm Cr.

(9) SPIKED WITH 0.5 ppm Co.

(10) SPIKED WITH 0.25 ppm Cu.

(11) SPIKED WITH 0.5 ppm Ni.

(12) SPIKED WITH 0.05 ppm Ag.

(13) SPIKED WITH 0.5 ppm V.

(14) SPIKED WITH 0.5 ppm Zn.

(15) SAMPLE SPIKED WITH 50UG/L EACH BENZENE, TOLUENE, CHLOROBENZENE, 1,1-DICHLOROETHENE AND TRICHLOROETHENE.

(16) This sample was spiked with the following compounds at the following levels (ug/L):

Phenol - 200
2-Chlorophenol - 200
1,4-Dichlorobenzene - 100
N-Nitroso-di-n-propylamine - 100
1,2,4-Trichlorobenzene - 100
4-Chloro-3-methylphenol - 200
Acenaphthene - 100
4-Nitrophenol - 200
2,4-Dinitrotoluene - 100
Pentachlorophenol - 200
Pyrene - 100

(17) Spiked with 8.0 MG/L

(18) Spiked with 40.0 ug/l

(19) SPIKED WITH 20.0 ppb Pb.

(20) SPIKED WITH 0.5 ppm Sb.

(21) SPIKED WITH 2.0 ppm Ba.

(22) SPIKED WITH 0.05 ppm Be.

(23) SPIKED WITH 0.05 ppm Cd.

(24) SPIKED WITH 0.2 ppm Cr.

(25) SPIKED WITH 0.5 ppm Co.

(26) SPIKED WITH 0.25 ppm Cu.

(27) SPIKED WITH 0.5 ppm Ni.

(28) SPIKED WITH 0.05 ppm Ag.

(29) SPIKED WITH 0.5 ppm V.

(30) SPIKED WITH 0.5 ppm Zn.

(31) SAMPLE SPIKED WITH 50UG/L EACH BENZENE, TOLUENE, CHLOROBENZENE, 1,1-DICHLOROETHENE AND TRICHLOROETHENE.

(32) This sample was spiked with the following compounds at the following levels (ug/L):
Phenol - 200
2-Chlorophenol - 200
1,4-Dichlorobenzene - 100
N-Nitroso-di-n-propylamine - 100
1,2,4-Trichlorobenzene - 100
4-Chloro-3-methylphenol - 200
Acenaphthene - 100
4-Nitrophenol - 200
2,4-Dinitrotoluene - 100
Pentachlorophenol - 200
Pyrene - 100

Test Method Summary:
0242A- SW-846 9010
0244A- SW-846 6010
0246A- SW-846 6010
0247A- SW-846 6010
0249A- SW-846 6010
0251A- SW-846 6010
0252A- SW-846 6010
0253A- SW-846 6010
0259B- SW-846 7470
0261A- SW-846 6010
0266A- SW-846 6010
0269B- SW-846 7870
0271A- SW-846 6010
0272A- SW-846 6010
1045B- SW-846 7060
1055 - SW-846 7421
1064B- SW-846 7740
1073B- SW-846 7841
1265 - SW-846 8240
1309 - SW-846 8270
1316 - SW-846 8150
1320 - SW-846 8140
1322 - SW-846 8080
2795A- SW-846 8280
5230 - EPA 376.1

ND - Compound was analyzed but not detected.

Respectfully Submitted,
Reviewed and Approved by:

Lora Dunlap
Project Manager

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:35:10
Group: 137

lysis Batch Number: 0179 -09/24/94-1163-1
dentification : 0179 -Pesticides and PCBs by 8080 Units: ug/l Sequence: ZOEC25710
Number of Samples : 6
Batch Data-Date/Time : 09/27/94 / 14:09:43

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BLK-092294	none detected		

SPIKE SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74749	gamma-BHC (Lindane)	0.5000	0.0000	0.4900	98.0	47.0	141.0
	Heptachlor	0.5000	0.0000	0.4900	98.0	48.0	132.0
	Aldrin	0.5000	0.0000	0.5200	104.0	41.0	141.0
	Dieldrin	1.0000	0.0000	1.0100	101.0	53.0	136.0
	Endrin	1.0000	0.0000	1.1700	117.0	30.0	160.0
	4,4'-DDT	1.0000	0.0000	0.7500	75.0	51.0	129.0

MSD SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS LOWER	QC LIMITS UPPER	RPD #	LI
13781-74750	gamma-BHC (Lindane)	0.5000	0.0000	0.5100	102.0	47.0	141.0	4.0	1
	Heptachlor	0.5000	0.0000	0.5150	103.0	48.0	132.0	5.0	1
	Aldrin	0.5000	0.0000	0.5550	111.0	41.0	141.0	6.5	2
	Dieldrin	1.0000	0.0000	1.0500	105.0	53.0	136.0	3.9	1
	Endrin	1.0000	0.0000	1.2100	121.0	30.0	160.0	3.4	3
	4,4'-DDT	1.0000	0.0000	0.8500	85.0	51.0	129.0	12.5	2

#:25-0177 -W-SG

	E#	TCX #	DCB #
BLK	1 BLK-092294	89	56
SPK	1 13781-74749	94	43
MSD	1 13781-74750	99	47
SAMPLE	13781-74743	80	46
SAMPLE	13781-74744	92	47
SAMPLE	13781-74745	85	39
SAMPLE	13781-74746	88	40
SAMPLE	13781-74747	82	53
SAMPLE	13781-74748	92	42

25-0177 -W-SG - PESTICIDE/PCB SURROGATE

SRG ABRV	= SURROGATE DESCRIPTION	QC LIMITS LOWER	QC LIMITS UPPER
TCX	Tetrachloro-m-xylene	47.0	125.0
DCB	Decachlorobiphenyl	25.0	128.0

Groups & Samples

13781-74743 13781-74744 13781-74745 13781-74746 13781-74747 13781-74748 13781-74749 13781-74750

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:35:15
Group: 137

sis Batch Number: 0242A-10/03/94-1165-1
dentification : 0242A-Total Cyanide, SW-846 Method Units: mg/l Sequence:
Number of Samples : 7
Batch Data-Date/Time : 10/04/94 / 14:19:08

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BLK-100394	Cyanide	ND	0.0200
BLK-100394-2	Cyanide	ND	0.0200
BLK-100394-3	Cyanide	ND	0.0200
ICB-100394-4	Cyanide	ND	0.0200
CCB-100394-5	Cyanide	ND	0.0200

SPIKE SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74744	Cyanide	0.1000	0.0001	0.1016	101.5	77.0	123.0

DUPLICATE SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
13780-74741	Cyanide	0.0000	0.0000	0.0	5.0	1.00
13781-74747-2	Cyanide	0.0005	0.0000	200.0(11)	5.0	1.00

CONTROL SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
ICV-100394	Cyanide	0.1586	0.1600	99.1	77.0	117.0

#	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
00394	Cyanide	0.2000	0.2001	100.0	85.0	115.0
CCV-100394-2	Cyanide	0.2000	0.2001	100.0	85.0	115.0

------------------------------ Result Footnotes ----------------------------

(11) - Both Duplicate results are less than the LOQ.

Groups & Samples

13780-74741 13781-74743 13781-74744 13781-74745 13781-74746 13781-74747 13781-74748

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:35:17
Group: 1378

Ma[illegible]is Batch Number: 0242A-10/04/94-1165-1
Te[illegible]dentification : 0242A-Total Cyanide, SW-846 Method   Units: mg/l   Sequence:
Number of Samples : 2
Batch Data-Date/Time : 10/04/94 / 17:23:27

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BLK-100494	Cyanide	ND	0.0200
BLK-100494-2	Cyanide	ND	0.0200
CCB-100494-3	Cyanide	ND	0.0200
CCB-100494-4	Cyanide	ND	0.0200

CONTROL					QC LIMITS	
SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER
ICV-100494	Cyanide	0.1589	0.1600	99.3	77.0	117.0

					QC LIMITS	
CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
CCV-100494	Cyanide	0.2000	0.1981	99.1	85.0	115.0
CCV-100494-2	Cyanide	0.2000	0.1952	97.6	85.0	115.0

Groups & Samples

13781-74749   13781-74750

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:35:45
Group: 13781

is Batch Number: 1064B-09/30/94-1114-1
Te entification : 1064B-Selenium by Furnace AA   Units: ug/l   Sequence: 093094A
Number of Samples : 7
Batch Data-Date/Time : 10/03/94 / 15:41:47

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
PBW1-092594	Selenium	0.8000	5.0000
PBW1-092994-2	Selenium	0.1000	5.0000

SPIKE

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74749	Selenium	10.0000	3.5000	1.1000	-24.0(A)	75.0	125.0

DUPLICATE

SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
13781-74748	Selenium	3.5000	9.0000	88.0(3a)	20.0	5.00

CONTROL

SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
LCSW1-092994	Selenium	8.2000	10.0000	82.0	80.0	120.0
LCSW1-092594-2	Selenium	8.3000	10.0000	83.0	80.0	120.0

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
0-1	Selenium	55.0000	55.1000	100.2	80.0	120.0
-2	Selenium	55.0000	48.9000	88.9	80.0	120.0
	Selenium	55.0000	46.5000	84.5	80.0	120.0
0-	Selenium	55.0000	48.6000	88.4	80.0	120.0
0-5-5	Selenium	55.0000	47.3000	86.0	80.0	120.0

STANDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Selenium	02/01/95	09/30/94	124

----------------------------- Result Footnotes -----------------------------

(A) - Matrix Interference
(3a) - Duplicate is valid because the result is less than 5 times the LOQ

Groups & Samples

13781-74743 13781-74744 13781-74745 13781-74746 13781-74747 13781-74748 13781-74749 13781-74750
13840-75374

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:35:48
Group: 13781

An 's Batch Number: 1073B-09/30/94-1114-1
Te entification : 1073B-Thallium by Furnace AA   Units: ug/l   Sequence:
Number of Samples : 9
Batch Data-Date/Time : 10/03/94 / 16:10:06

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
PBW1-092594	Thallium	ND	10.0000
PBW1-092994-2	Thallium	ND	10.0000

SPIKE SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74747	Thallium	50.0000	0.0000	10.1000	20.2(A)	75.0	125.0

DUPLICATE SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
13781-74747	Thallium	0.0000	0.0000	0.0	20.0	5.00

CONTROL SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
LCSW1-092594	Thallium	50.2000	50.0000	100.4	85.0	115.0
LCSW1-092994-2	Thallium	44.7000	50.0000	89.4	85.0	115.0

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
CCV-1	Thallium	55.0000	58.3000	106.0	90.0	110.0
-2-2	Thallium	55.0000	53.1000	96.5	90.0	110.0
C 3	Thallium	55.0000	51.0000	92.7	90.0	110.0
CC 4	Thallium	55.0000	49.8000	90.5	90.0	110.0
CCV-5-5	Thallium	55.0000	56.6000	102.9	90.0	110.0
CCV-6-6	Thallium	55.0000	56.9000	103.5	90.0	110.0
CCV-7-7	Thallium	55.0000	56.9000	103.5	90.0	110.0

------------------------------ Result Footnotes ------------------------------

(A) - Matrix Interference

Groups & Samples

13781-74743 13781-74744 13781-74745 13781-74746 13781-74747 13781-74748 13781-74749 13781-74750
13840-75374

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:35:50
Group: 13781

na · Batch Number: 1145E-09/23/94-1014-1
es. entification : 1145E-Arsenic by Furnace AA, Solids   Units: ug/kg   Sequence: 092394
umber of Samples : 3
atch Data-Date/Time : 09/26/94 / 09:31:09

LANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
bs1-92294	Arsenic	ND	500.0000

PIKE

AMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
3791-74883	Arsenic	4000.0000	0.0000	2250.0000	56.3(A)	75.0	125.0

UPLICATE

AMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
3791-74883	Arsenic	0.0000	0.0000	0.0	20.0	1.00

CONTROL

AMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
CSS2-92294	Arsenic	111500.0000	128000.0000	87.1	34.5	148.4

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
0	Arsenic	55.0000	57.4000	104.4	80.0	120.0
0-2	Arsenic	55.0000	59.3000	107.8	80.0	120.0
0-3	Arsenic	55.0000	57.5000	104.5	80.0	120.0
	Arsenic	55.0000	56.5000	102.7	80.0	120.0
0	Arsenic	55.0000	57.9000	105.3	80.0	120.0
0-6	Arsenic	55.0000	55.7000	101.3	80.0	120.0
0-7	Arsenic	55.0000	55.2000	100.4	80.0	120.0

STANDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Arsenic	02/01/95	09/23/94	131

------------------------------ Result Footnotes ------------------------------

(A) - Matrix Interference

Groups & Samples

13781-74882	13781-74883	13791-74882	13791-74883	13809-75124

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:35:57
Group: 1378

sis Batch Number: 1173A-09/23/94-1014-1
Identification : 1173A-Thallium by Furnace AA, Solids Units: ug/kg Sequence: 092394M
Number of Samples : 3
Batch Data-Date/Time : 09/24/94 / 16:24:10

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
pbs1-92294	Thallium	0.3000	1000.0000

SPIKE SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13791-74882	Thallium	5000.0000	0.0000	2300.0000	46.0(A)	75.0	125.0

DUPLICATE SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
13791-74882	Thallium	0.0000	0.0000	0.0	20.0	1.00

CONTROL SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
LCSS2-92294	Thallium	99000.0000	102000.0000	97.1	50.0	149.0

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
0	Thallium	55.0000	57.0000	103.6	80.0	120.0
0-2	Thallium	55.0000	59.6000	108.4	80.0	120.0
0-3	Thallium	55.0000	55.3000	100.5	80.0	120.0
	Thallium	55.0000	50.7000	92.2	80.0	120.0
	Thallium	55.0000	47.8000	86.9	80.0	120.0

STANDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Thallium	11/01/94	09/23/94	39

----------------------------- Result Footnotes -----------------------------

(A) - Matrix Interference

Groups & Samples

13781-74882 13781-74883 13791-74882 13809-75124

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:00
Group: 13781

An s Batch Number: 1866 -10/03/94-1163-1
Test Identification : 1866 -Herbicides, Waters
Units: ug/l
Sequence: HERB4577
Number of Samples : 6
Batch Data-Date/Time : 10/04/94 / 10:58:29

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BLK-100394	none detected		

SPIKE

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74749	2,4-D	1.2000	0.0000	1.2100	100.8	50.0	150.0
	2,4,5-TP (Silvex)	1.2000	0.0000	1.2300	102.5	50.0	150.0
	2-sec-Butyl-4,6-dinitrophenol (Dino	1.2000	0.0000	0.0600	5.0(N)	50.0	150.0
	2,4,5-T	1.2000	0.0000	1.2700	105.8	50.0	150.0

MSD

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS LOWER	QC LIMITS UPPER	RPD #	LIM!
13781-74750	2,4-D	1.2000	0.0000	0.4600	38.3(N)	50.0	150.0	89.9(N)	20.
	2,4,5-TP (Silvex)	1.2000	0.0000	0.6100	50.8	50.0	150.0	67.4(N)	20.
	2-sec-Butyl-4,6-dinitrophenol (Dino	1.2000	0.0000	0.0500	4.2(N)	50.0	150.0	17.4	20.
	2,4,5-T	1.2000	0.0000	0.6200	51.7(N)	50.0	150.0	68.7(N)	20.

SURG #:25-1866 -W-SU

SAMPLE#			DCPA #
BLK	1	BLK-100394	67
	1	13781-74749	93
		13781-74750	33(N)
SAMPLE		13781-74743	138
SAMPLE		13781-74744	7(N)
SAMPLE		13781-74745	4(N)
SAMPLE		13781-74746	69
SAMPLE		13781-74747	56
SAMPLE		13781-74748	63

25-1866 -W-SU - HERBICIDE WATER SURROGATE

SRG ABRV	= SURROGATE DESCRIPTION	QC LIMITS LOWER	QC LIMITS UPPER
DCPA	2,4-Dichlorophenylacetic acid	50.0	150.0

------------------------------ Result Footnotes ------------------------------

(N) - Possible Sample Preparation Error

Groups & Samples

13781-74743	13781-74744	13781-74745	13781-74746	13781-74747	13781-74748	13781-74749	13781-74750

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:03
Group: 13781

is Batch Number: 5230 -09/22/94-1160-1
Te dentification : 5230 -Sulfide, Mid Level   Units: mg/l   Sequence:
Number of Samples : 8
Batch Data-Date/Time : 09/23/94 / 17:21:08

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BLK-092294	Sulfide	ND	1.0000

SPIKE

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74747	Sulfide	13.6200	0.0000	13.9920	102.7	40.0	167.0

MSD

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS LOWER	QC LIMITS UPPER	RPD #	LIMI
13781-74747	Sulfide	13.6200	0.0000	14.5920	107.1	40.0	167.0	4.2	10.

DUPLICATE

SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
13781-74747	Sulfide	0.0000	0.0000	0.0	1.0	1.00

CONTROL

SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
LCS-092294	Sulfide	1359.2000	1236.0000	110.0	79.0	118.0

roups & Samples

3781-74743   13781-74744   13781-74745   13781-74746   13781-74747   13781-74748   13781-74749   13781-74750

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:04
Group: 1378

sis Batch Number: ICPWA-09/30/94-1080-2
Identification : ICPWA-Metals by ICP
Units: mg/l
Sequence: A093094
Number of Samples : 9
Batch Data-Date/Time : 10/03/94 / 22:50:50

						QC LIMITS	
CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC	#	LOWER	UPPER
1	Aluminum	2.5000	2.6814	107.3		90.0	110.0
	Antimony	5.0000	5.0712	101.4		90.0	110.0
	Arsenic	2.5000	2.5087	100.3		90.0	110.0
	Barium	0.5000	0.5269	105.4		90.0	110.0
	Beryllium	0.5000	0.5073	101.5		90.0	110.0
	Cadmium	0.5000	0.5287	105.7		90.0	110.0
	Calcium	25.0000	25.7896	103.2		90.0	110.0
	Chromium	0.5000	0.5189	103.8		90.0	110.0
	Cobalt	1.0000	0.9754	97.5		90.0	110.0
	Copper	0.5000	0.5261	105.2		90.0	110.0
	Iron	0.5000	0.5382	107.6		90.0	110.0
	Lead	2.5000	2.5703	102.8		90.0	110.0
	Magnesium	5.0000	5.1450	102.9		90.0	110.0
	Manganese	0.5000	0.5128	102.6		90.0	110.0
	Nickel	1.0000	1.0693	106.9		90.0	110.0
	Potassium	25.0000	23.8642	95.5		90.0	110.0
	Selenium	2.5000	2.4679	98.7		90.0	110.0
	Silver	0.2500	0.2548	101.9		90.0	110.0
	Sodium	25.0000	26.3226	105.3		90.0	110.0
	Vanadium	2.5000	2.6598	106.4		90.0	110.0
	Zinc	0.5000	0.5082	101.6		90.0	110.0
2	Aluminum	2.5000	2.7037	108.1		90.0	110.0
	Antimony	5.0000	5.1140	102.3		90.0	110.0
	Arsenic	2.5000	2.5541	102.2		90.0	110.0
	Barium	0.5000	0.5260	105.2		90.0	110.0
	Beryllium	0.5000	0.5121	102.4		90.0	110.0
	Cadmium	0.5000	0.5375	107.5		90.0	110.0
	Calcium	25.0000	26.2758	105.1		90.0	110.0
	Chromium	0.5000	0.5271	105.4		90.0	110.0
	Cobalt	1.0000	0.9880	98.8		90.0	110.0
	Copper	0.5000	0.5278	105.6		90.0	110.0
	Iron	0.5000	0.5553	111.1	(CC)	90.0	110.0
	Lead	2.5000	2.6115	104.5		90.0	110.0
	Magnesium	5.0000	5.1819	103.6		90.0	110.0
	Manganese	0.5000	0.5161	103.2		90.0	110.0
	Nickel	1.0000	1.0938	109.4		90.0	110.0
	Potassium	25.0000	25.6231	102.5		90.0	110.0
	Selenium	2.5000	2.5324	101.3		90.0	110.0
	Silver	0.2500	0.2559	102.4		90.0	110.0
	Sodium	25.0000	26.2324	104.9		90.0	110.0
	Vanadium	2.5000	2.6778	107.1		90.0	110.0
	Zinc	0.5000	0.5148	103.0		90.0	110.0

NDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Aluminum	03/01/95	09/30/94	152
	Antimony	02/01/95	09/30/94	124
	Arsenic	02/01/95	09/30/94	124
	Barium	11/01/94	09/30/94	32
	Beryllium	09/01/95	09/30/94	336

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:09
Group: 13781

Ar s Batch Number: ICPWA-09/30/94-1080-2
Test identification : ICPWA-Metals by ICP   Units: mg/l   Sequence: A093094
Number of Samples : 9
Batch Data-Date/Time : 10/03/94 / 22:50:50

STANDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Cadmium	09/01/95	09/30/94	336
	Calcium	11/01/94	09/30/94	32
	Chromium	10/01/95	09/30/94	366
	Cobalt	10/01/95	09/30/94	366
	Copper	06/01/95	09/30/94	244
	Iron	10/01/95	09/30/94	366
	Lead	06/01/95	09/30/94	244
	Magnesium	11/01/94	09/30/94	32
	Manganese	02/01/95	09/30/94	124
	Nickel	02/01/95	09/30/94	124
	Potassium	11/01/94	09/30/94	32
	Selenium	02/01/95	09/30/94	124
	Silver	09/01/95	09/30/94	336
	Sodium	06/01/95	09/30/94	244
	Vanadium	10/01/95	09/30/94	366
	Zinc	10/01/95	09/30/94	366

----------------------------- Result Footnotes -----------------------------

(CC) - The analyte CCV was not required to bracket data reported.

----------------------- Batch Notes -----------------------------

Additional QC in batches ICPWA-10/03/94-1080-2 and ICPWA-09/26/94-1080-2.

Groups & Samples

13780-74741 13780-74742 13781-74743 13781-74744 13781-74745 13781-74746 13781-74747 13781-74748
13781-74749 13807-75090

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:11
Group: 13781

Batch Number: ICPWA-10/03/94-1080-2
est identification : ICPWA-Metals by ICP   Units: mg/l   Sequence: A10039T
umber of Samples : 24
atch Data-Date/Time : 10/04/94 / 02:21:13

LANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
BW2-093094	Aluminum	ND	0.2000
	Antimony	0.0060	0.0400
	Barium	0.0001	0.1000
	Beryllium	ND	0.0050
	Cadmium	ND	0.0050
	Chromium	0.0036	0.0100
	Cobalt	0.0004	0.0250
	Copper	ND	0.0250
	Iron	0.0201	0.1000
	Lead	ND	0.0500
	Magnesium	0.0038	0.1000
	Manganese	0.0004	0.0150
	Nickel	0.0035	0.0400
	Potassium	ND	5.0000
	Selenium	ND	0.2000
	Silver	ND	0.0100
	Sodium	0.0524	0.1000
	Zinc	0.0007	0.0400
W1-092294-2	Aluminum	ND	0.2000
	Antimony	0.0119	0.0400
	Barium	ND	0.1000
	Beryllium	ND	0.0050
	Cadmium	ND	0.0050
	Chromium	ND	0.0100
	Cobalt	ND	0.0250
	Copper	ND	0.0250
	Iron	ND	0.1000
	Lead	ND	0.0500
	Magnesium	ND	0.1000
	Manganese	ND	0.0150
	Nickel	ND	0.0400
	Potassium	1.0401	5.0000
	Selenium	0.0293	0.2000
	Silver	ND	0.0100
	Sodium	0.0258	0.1000
	Zinc	ND	0.0400

SPIKE SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74749	Aluminum	2.0000	13.5899	13.4093	-9.0(2a)	75.0	125.0
	Antimony	0.5000	0.0000	0.2766	55.3(A)	75.0	125.0
	Barium	2.0000	0.2208	2.0060	89.3	75.0	125.0
	Beryllium	0.0500	0.0010	0.0474	92.8	75.0	125.0
	Cadmium	0.0500	0.0000	0.0511	102.2	75.0	125.0
	Chromium	0.2000	0.0222	0.2228	100.3	75.0	125.0
	Cobalt	0.5000	0.0131	0.4286	83.1	75.0	125.0
	Copper	0.2500	0.0141	0.2521	95.2	75.0	125.0
	Iron	1.0000	71.4673	91.6337	2016.6(2a)	75.0	125.0
	Lead	0.5000	0.0091	0.4360	85.4	75.0	125.0
	Magnesium	20.0000	7.8976	24.8482	84.8	75.0	125.0

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:14
Group: 13781

is Batch Number: ICPWA-10/03/94-1080-2
Test Identification : ICPWA-Metals by ICP
Number of Samples : 24
Batch Data-Date/Time : 10/04/94 / 02:21:13

Units: mg/l

Sequence: A10039T

SPIKE						QC LIMITS	
SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	LOWER	UPPER
13781-74749	Manganese	0.5000	4.1693	3.8726	-59.3(2a)	75.0	125.0
	Nickel	0.5000	0.0223	0.4374	83.0	75.0	125.0
	Potassium	20.0000	5.7625	22.5046	83.7	75.0	125.0
	Selenium	2.0000	0.0091	1.7373	86.4	75.0	125.0
	Silver	0.0500	0.0029	0.0492	92.6	75.0	125.0
	Sodium	20.0000	135.6677	145.0293	46.8(2a)	75.0	125.0
	Zinc	0.5000	0.0779	0.4800	80.4	75.0	125.0
13845-75474-2	Aluminum	2.0000	0.0214	1.9007	94.0	75.0	125.0
	Antimony	0.5000	0.0000	0.4592	91.8	75.0	125.0
	Barium	2.0000	0.3482	2.1404	89.6	75.0	125.0
	Beryllium	0.0500	0.0000	0.0480	96.0	75.0	125.0
	Cadmium	0.0500	0.0000	0.0520	104.0	75.0	125.0
	Chromium	0.2000	0.0000	0.2142	107.1	75.0	125.0
	Cobalt	0.5000	0.0119	0.4546	88.5	75.0	125.0
	Copper	0.2500	0.0077	0.2484	96.3	75.0	125.0
	Iron	1.0000	9.1478	9.4699	32.2(2a)	75.0	125.0
	Lead	0.5000	0.0000	0.4478	89.6	75.0	125.0
	Magnesium	20.0000	7.6504	25.2679	88.1	75.0	125.0
	Manganese	0.5000	5.2014	5.2569	11.1(2a)	75.0	125.0
	Nickel	0.5000	0.0061	0.4510	89.0	75.0	125.0
	Potassium	20.0000	3.0029	19.9212	84.6	75.0	125.0
	Selenium	2.0000	0.0244	1.6491	81.2	75.0	125.0
	Silver	0.0500	0.0000	0.0477	95.4	75.0	125.0
	Sodium	20.0000	3.1128	19.8087	83.5	75.0	125.0
	Zinc	0.5000	0.0151	0.4387	84.7	75.0	125.0
13922-75986-3	Aluminum	2.0000	0.0654	1.9459	94.0	75.0	125.0
	Antimony	0.5000	0.0000	0.4419	88.4	75.0	125.0
	Barium	2.0000	0.0642	1.9363	93.6	75.0	125.0
	Beryllium	0.0500	0.0001	0.0473	94.4	75.0	125.0
	Cadmium	0.0500	0.0003	0.0496	98.6	75.0	125.0
	Chromium	0.2000	0.0339	0.2420	104.1	75.0	125.0
	Cobalt	0.5000	0.0001	0.4313	86.2	75.0	125.0
	Copper	0.2500	0.0080	0.2518	97.5	75.0	125.0
	Iron	1.0000	0.0889	1.1453	105.6	75.0	125.0
	Lead	0.5000	0.0091	0.4356	85.3	75.0	125.0
	Magnesium	20.0000	22.9732	40.2956	86.6	75.0	125.0
	Manganese	0.5000	0.0017	0.4579	91.2	75.0	125.0
	Nickel	0.5000	0.0039	0.4359	86.4	75.0	125.0
	Potassium	20.0000	5.5024	21.9510	82.2	75.0	125.0
	Selenium	2.0000	0.0000	1.7526	87.6	75.0	125.0
	Silver	0.0500	0.0000	0.0447	89.4	75.0	125.0
	Sodium	20.0000	115.9966	130.1189	70.6(2a)	75.0	125.0
	Zinc	0.5000	0.0413	0.4683	85.4	75.0	125.0
80-74736-4	Aluminum	2.0000	0.1852	2.0907	95.3	75.0	125.0
	Antimony	0.5000	0.0069	0.4358	85.8	75.0	125.0
	Barium	2.0000	0.3800	2.2722	94.6	75.0	125.0
	Beryllium	0.0500	0.0000	0.0465	93.0	75.0	125.0
	Cadmium	0.0500	0.0052	0.0534	96.4	75.0	125.0
	Chromium	0.2000	0.0048	0.2166	105.9	75.0	125.0

is Batch Number: ICPWA-10/03/94-1080-2
Test Identification : ICPWA-Metals by ICP   Units: mg/l   Sequence: A10039T
Number of Samples : 24
Batch Data-Date/Time : 10/04/94 / 02:21:13

SPIKE

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13780-74736-4	Cobalt	0.5000	0.0026	0.4410	87.7	75.0	125.0
	Copper	0.2500	0.0065	0.2501	97.4	75.0	125.0
	Iron	1.0000	6.1227	6.7407	61.8(2a)	75.0	125.0
	Lead	0.5000	0.0107	0.4773	93.3	75.0	125.0
	Magnesium	20.0000	34.2459	52.5099	91.3	75.0	125.0
	Manganese	0.5000	0.3580	0.8123	90.9	75.0	125.0
	Nickel	0.5000	0.0845	0.5263	88.4	75.0	125.0
	Potassium	20.0000	0.0000	18.4617	92.3	75.0	125.0
	Selenium	2.0000	0.0467	1.7700	86.2	75.0	125.0
	Silver	0.0500	0.0000	0.0461	92.2	75.0	125.0
	Sodium	20.0000	146.8273	161.9871	75.8	75.0	125.0
	Zinc	0.5000	2.1053	2.4003	59.0(2a)	75.0	125.0

MSD

SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	RESULT 2	%REC2 #	QC LIMITS LOWER	QC LIMITS UPPER	RPD #	LIMI
13781-74750	Antimony	0.5000	0.0000	0.2661	53.2(A)	75.0	125.0	3.9	20.
	Barium	2.0000	0.2208	2.0018	89.0	75.0	125.0	0.3	20.
	Beryllium	0.0500	0.0010	0.0459	89.8	75.0	125.0	3.3	20.
	Cadmium	0.0500	0.0000	0.0500	100.0	75.0	125.0	2.2	20.
	Chromium	0.2000	0.0222	0.2295	103.7	75.0	125.0	3.3	20.
	Cobalt	0.5000	0.0131	0.4330	84.0	75.0	125.0	1.1	20.
	Copper	0.2500	0.0141	0.2566	97.0	75.0	125.0	1.9	20.
	Nickel	0.5000	0.0223	0.4412	83.8	75.0	125.0	1.0	20.
	Silver	0.0500	0.0029	0.0484	91.0	75.0	125.0	1.7	20.
	Zinc	0.5000	0.0779	0.5236	89.1	75.0	125.0	10.3	20.

DUPLICATE

SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
13781-74748	Aluminum	13.5899	12.6311	7.3	20.0	1.00
	Antimony	0.0000	0.0000	0.0	20.0	1.00
	Barium	0.2208	0.2490	12.0	20.0	1.00
	Beryllium	0.0010	0.0019	62.1(11)	20.0	1.00
	Cadmium	0.0000	0.0003	200.0(11)	20.0	1.00
	Chromium	0.0222	0.0259	15.4	20.0	1.00
	Cobalt	0.0131	0.0188	35.7(11)	20.0	1.00
	Copper	0.0141	0.0186	27.5(11)	20.0	1.00
	Iron	71.4673	99.4164	32.7(B)	20.0	1.00
	Lead	0.0091	0.0211	79.5(11)	20.0	1.00
	Magnesium	7.8976	7.1110	10.5	20.0	1.00
	Manganese	4.1693	4.0360	3.2	20.0	1.00
	Nickel	0.0223	0.0331	39.0(11)	20.0	1.00
	Potassium	5.7625	4.1772	31.9(3a)	20.0	1.00
	Selenium	0.0091	0.1062	168.4(11)	20.0	1.00
	Silver	0.0029	0.0039	29.4(11)	20.0	1.00
	Sodium	135.6677	127.2862	6.4	20.0	1.00
	Zinc	0.0779	0.0923	16.9	20.0	1.00
13845-75547-2	Aluminum	0.0214	0.0012	178.8(11)	20.0	1.00
	Antimony	0.0000	0.0000	0.0	20.0	1.00
	Barium	0.3482	0.3318	4.8	20.0	1.00

Batch Number: ICPWA-10/03/94-1080-2
Test Identification : ICPWA-Metals by ICP
Units: mg/l
Sequence: A10039T
Number of Samples : 24
Batch Data-Date/Time : 10/04/94 / 02:21:13

DUPLICATE

SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
13845-75547-2	Beryllium	0.0000	0.0000	0.0	20.0	1.00
	Cadmium	0.0000	0.0000	0.0	20.0	1.00
	Chromium	0.0000	0.0013	200.0(11)	20.0	1.00
	Cobalt	0.0119	0.0110	7.9	20.0	1.00
	Copper	0.0077	0.0059	26.5(11)	20.0	1.00
	Iron	9.1478	8.9065	2.7	20.0	1.00
	Lead	0.0000	0.0024	200.0(11)	20.0	1.00
	Magnesium	7.6504	7.2980	4.7	20.0	1.00
	Manganese	5.2014	4.8680	6.6	20.0	1.00
	Nickel	0.0061	0.0074	19.3	20.0	1.00
	Potassium	3.0029	1.0904	93.4(11)	20.0	1.00
	Selenium	0.0244	0.0000	200.0(11)	20.0	1.00
	Silver	0.0000	0.0000	0.0	20.0	1.00
	Sodium	3.1128	2.9466	5.5	20.0	1.00
	Zinc	0.0151	0.0141	6.8	20.0	1.00
13922-75986-3	Aluminum	0.0654	0.0430	41.3(11)	20.0	1.00
	Antimony	0.0000	0.0000	0.0	20.0	1.00
	Barium	0.0642	0.0640	0.3	20.0	1.00
	Beryllium	0.0001	0.0001	0.0	20.0	1.00
	Cadmium	0.0003	0.0000	200.0(11)	20.0	1.00
	Chromium	0.0339	0.0322	5.1	20.0	1.00
	Cobalt	0.0001	0.0007	150.0(11)	20.0	1.00
	Copper	0.0080	0.0073	9.2	20.0	1.00
	Iron	0.0889	0.0548	47.5(11)	20.0	1.00
	Lead	0.0091	0.0015	143.4(11)	20.0	1.00
	Magnesium	22.9732	22.5583	1.8	20.0	1.00
	Manganese	0.0017	0.0009	61.5(11)	20.0	1.00
	Nickel	0.0039	0.0049	22.7(11)	20.0	1.00
	Potassium	5.5024	3.7326	38.3(3a)	20.0	1.00
	Selenium	0.0000	0.0000	0.0	20.0	1.00
	Silver	0.0000	0.0000	0.0	20.0	1.00
	Sodium	115.9966	114.9893	0.9	20.0	1.00
	Zinc	0.0413	0.0333	21.4(3a)	20.0	1.00
13780-74736-4	Aluminum	0.1852	0.2684	36.7(3a)	20.0	1.00
	Antimony	0.0069	0.0000	200.0(11)	20.0	1.00
	Barium	0.3800	0.3695	2.8	20.0	1.00
	Beryllium	0.0000	0.0000	0.0	20.0	1.00
	Cadmium	0.0052	0.0038	31.1(3a)	20.0	1.00
	Chromium	0.0048	0.0049	2.1	20.0	1.00
	Cobalt	0.0026	0.0014	60.0(11)	20.0	1.00
	Copper	0.0065	0.0056	14.9	20.0	1.00
	Iron	6.1227	5.9206	3.4	20.0	1.00
	Lead	0.0107	0.0045	81.6(11)	20.0	1.00
	Magnesium	34.2459	33.3912	2.5	20.0	1.00
	Manganese	0.3580	0.3499	2.3	20.0	1.00
	Nickel	0.0845	0.0854	1.1	20.0	1.00
	Potassium	0.0000	0.0000	0.0	20.0	1.00
	Selenium	0.0467	0.0000	200.0(11)	20.0	1.00
	Silver	0.0000	0.0000	0.0	20.0	1.00

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:22
Group: 13781

s Batch Number: ICPWA-10/03/94-1080-2
es Identification : ICPWA-Metals by ICP Units: mg/l Sequence: A10039T
lumber of Samples : 24
iatch Data-Date/Time : 10/04/94 / 02:21:13

UPLICATE

AMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
3780-74736-4	Sodium	146.8273	142.7457	2.8	20.0	1.00
	Zinc	2.1053	1.9855	5.9	20.0	1.00

ONTROL

					QC LIMITS	
AMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	LOWER	UPPER
.CSW2-093094	Aluminum	1.8484	2.0000	92.4	80.0	120.0
	Antimony	0.4428	0.5000	88.6	80.0	120.0
	Barium	1.8312	2.0000	91.6	80.0	120.0
	Beryllium	0.0484	0.0500	96.8	80.0	120.0
	Cadmium	0.0524	0.0500	104.8	80.0	120.0
	Chromium	0.2110	0.2000	105.5	80.0	120.0
	Cobalt	0.4398	0.5000	88.0	80.0	120.0
	Copper	0.2442	0.2500	97.7	80.0	120.0
	Iron	1.0607	1.0000	106.1	80.0	120.0
	Lead	0.4454	0.5000	89.1	80.0	120.0
	Magnesium	18.4747	20.0000	92.4	80.0	120.0
	Manganese	0.4618	0.5000	92.4	80.0	120.0
	Nickel	0.4424	0.5000	88.5	80.0	120.0
	Potassium	17.7823	20.0000	88.9	80.0	120.0
	Selenium	1.7342	2.0000	86.7	80.0	120.0
	Silver	0.0461	0.0500	92.2	80.0	120.0
	Sodium	17.4530	20.0000	87.3	80.0	120.0
	Zinc	0.4317	0.5000	86.3	80.0	120.0
.CSW1-092294-2	Aluminum	1.8380	2.0000	91.9	80.0	120.0
	Antimony	0.4386	0.5000	87.7	80.0	120.0
	Barium	1.8444	2.0000	92.2	80.0	120.0
	Beryllium	0.0472	0.0500	94.4	80.0	120.0
	Cadmium	0.0500	0.0500	100.0	80.0	120.0
	Chromium	0.2167	0.2000	108.4	80.0	120.0
	Cobalt	0.4465	0.5000	89.3	80.0	120.0
	Copper	0.2380	0.2500	95.2	80.0	120.0
	Iron	1.0703	1.0000	107.0	80.0	120.0
	Lead	0.4517	0.5000	90.3	80.0	120.0
	Magnesium	18.3245	20.0000	91.6	80.0	120.0
	Manganese	0.4661	0.5000	93.2	80.0	120.0
	Nickel	0.4460	0.5000	89.2	80.0	120.0
	Potassium	17.6397	20.0000	88.2	80.0	120.0
	Selenium	1.7305	2.0000	86.5	80.0	120.0
	Silver	0.0440	0.0500	88.0	80.0	120.0
	Sodium	17.2822	20.0000	86.4	80.0	120.0
	Zinc	0.4273	0.5000	85.5	80.0	120.0

					QC LIMITS	
#	ANALYTE	TRUE VALUE	BATCH READ	% REC #	LOWER	UPPER
	Aluminum	2.5000	2.5988	104.0	90.0	110.0
	Antimony	5.0000	4.8962	97.9	90.0	110.0
	Barium	0.5000	0.5072	101.4	90.0	110.0
	Beryllium	0.5000	0.4923	98.5	90.0	110.0
	Cadmium	0.5000	0.5206	104.1	90.0	110.0

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:27
Group: 13781

na ; Batch Number: ICPWA-10/03/94-1080-2
est Identification : ICPWA-Metals by ICP
umber of Samples : 24
atch Data-Date/Time : 10/04/94 / 02:21:13

Units: mg/l

Sequence: A10039T

CV #	ANALYTE	TRUE VALUE	BATCH READ	% REC	#	QC LIMITS LOWER	UPPER
1	Chromium	0.5000	0.5099	102.0		90.0	110.0
	Cobalt	1.0000	0.9717	97.2		90.0	110.0
	Copper	0.5000	0.5119	102.4		90.0	110.0
	Iron	0.5000	0.5131	102.6		90.0	110.0
	Lead	2.5000	2.5367	101.5		90.0	110.0
	Magnesium	5.0000	5.0527	101.1		90.0	110.0
	Manganese	0.5000	0.5062	101.2		90.0	110.0
	Nickel	1.0000	1.0207	102.1		90.0	110.0
	Potassium	25.0000	25.0545	100.2		90.0	110.0
	Selenium	2.5000	2.4670	98.7		90.0	110.0
	Silver	0.2500	0.2418	96.7		90.0	110.0
	Sodium	25.0000	24.8367	99.3		90.0	110.0
	Zinc	0.5000	0.4837	96.7		90.0	110.0
2	Aluminum	2.5000	2.6365	105.5		90.0	110.0
	Antimony	5.0000	4.9217	98.4		90.0	110.0
	Barium	0.5000	0.5038	100.8		90.0	110.0
	Beryllium	0.5000	0.4940	98.8		90.0	110.0
	Cadmium	0.5000	0.5229	104.6		90.0	110.0
	Chromium	0.5000	0.5101	102.0		90.0	110.0
	Cobalt	1.0000	0.9737	97.4		90.0	110.0
	Copper	0.5000	0.5158	103.2		90.0	110.0
	Iron	0.5000	0.5199	104.0		90.0	110.0
	Lead	2.5000	2.5332	101.3		90.0	110.0
	Magnesium	5.0000	5.1060	102.1		90.0	110.0
	Manganese	0.5000	0.5062	101.2		90.0	110.0
	Nickel	1.0000	1.0239	102.4		90.0	110.0
	Potassium	25.0000	25.6333	102.5		90.0	110.0
	Selenium	2.5000	2.5300	101.2		90.0	110.0
	Silver	0.2500	0.2443	97.7		90.0	110.0
	Sodium	25.0000	25.0250	100.1		90.0	110.0
	Zinc	0.5000	0.4876	97.5		90.0	110.0
3	Aluminum	2.5000	2.6622	106.5		90.0	110.0
	Antimony	5.0000	5.0210	100.4		90.0	110.0
	Barium	0.5000	0.5116	102.3		90.0	110.0
	Beryllium	0.5000	0.4990	99.8		90.0	110.0
	Cadmium	0.5000	0.5351	107.0		90.0	110.0
	Chromium	0.5000	0.5224	104.5		90.0	110.0
	Cobalt	1.0000	0.9955	99.6		90.0	110.0
	Copper	0.5000	0.5212	104.2		90.0	110.0
	Iron	0.5000	0.5464	109.3		90.0	110.0
	Lead	2.5000	2.5929	103.7		90.0	110.0
	Magnesium	5.0000	5.1321	102.6		90.0	110.0
	Manganese	0.5000	0.5161	103.2		90.0	110.0
	Nickel	1.0000	1.0397	104.0		90.0	110.0
	Potassium	25.0000	27.1683	108.7		90.0	110.0
	Selenium	2.5000	2.5836	103.3		90.0	110.0
	Silver	0.2500	0.2483	99.3		90.0	110.0
	Sodium	25.0000	25.1022	100.4		90.0	110.0
	Zinc	0.5000	0.4953	99.1		90.0	110.0

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:29
Group: 13781

: Batch Number: ICPWA-10/03/94-1080-2
est identification : ICPWA-Metals by ICP
umber of Samples : 24
atch Data-Date/Time : 10/04/94 / 02:21:13

Units: mg/l

Sequence: A10039T

CV #	ANALYTE	TRUE VALUE	BATCH READ	% REC	#	QC LIMITS	
						LOWER	UPPER
5	Aluminum	2.5000	2.5592	102.4		90.0	110.0
	Antimony	5.0000	4.8520	97.0		90.0	110.0
	Barium	0.5000	0.4844	96.9		90.0	110.0
	Beryllium	0.5000	0.4820	96.4		90.0	110.0
	Cadmium	0.5000	0.5180	103.6		90.0	110.0
	Chromium	0.5000	0.5017	100.3		90.0	110.0
	Cobalt	1.0000	0.9594	95.9		90.0	110.0
	Copper	0.5000	0.5012	100.2		90.0	110.0
	Iron	0.5000	0.5222	104.4		90.0	110.0
	Lead	2.5000	2.5101	100.4		90.0	110.0
	Magnesium	5.0000	4.9599	99.2		90.0	110.0
	Manganese	0.5000	0.4962	99.2		90.0	110.0
	Nickel	1.0000	0.9987	99.9		90.0	110.0
	Potassium	25.0000	26.8327	107.3		90.0	110.0
	Selenium	2.5000	2.4734	98.9		90.0	110.0
	Silver	0.2500	0.2385	95.4		90.0	110.0
	Sodium	25.0000	24.1061	96.4		90.0	110.0
	Zinc	0.5000	0.4790	95.8		90.0	110.0
	Aluminum	2.5000	2.5800	103.2		90.0	110.0
	Antimony	5.0000	4.9587	99.2		90.0	110.0
	Barium	0.5000	0.4874	97.5		90.0	110.0
	Beryllium	0.5000	0.4895	97.9		90.0	110.0
	Cadmium	0.5000	0.5285	105.7		90.0	110.0
	Chromium	0.5000	0.5105	102.1		90.0	110.0
	Cobalt	1.0000	0.9796	98.0		90.0	110.0
	Copper	0.5000	0.5045	100.9		90.0	110.0
	Iron	0.5000	0.5380	107.6		90.0	110.0
	Lead	2.5000	2.5455	101.8		90.0	110.0
	Magnesium	5.0000	5.0203	100.4		90.0	110.0
	Manganese	0.5000	0.5037	100.7		90.0	110.0
	Nickel	1.0000	1.0110	101.1		90.0	110.0
	Potassium	25.0000	27.7890	111.2(CC)		90.0	110.0
	Selenium	2.5000	2.4448	97.8		90.0	110.0
	Silver	0.2500	0.2423	96.9		90.0	110.0
	Sodium	25.0000	24.1691	96.7		90.0	110.0
	Zinc	0.5000	0.4857	97.1		90.0	110.0
8	Aluminum	2.5000	2.5608	102.4		90.0	110.0
	Antimony	5.0000	4.9643	99.3		90.0	110.0
	Barium	0.5000	0.4903	98.1		90.0	110.0
	Beryllium	0.5000	0.4877	97.5		90.0	110.0
	Cadmium	0.5000	0.5275	105.5		90.0	110.0
	Chromium	0.5000	0.5115	102.3		90.0	110.0
	Cobalt	1.0000	0.9800	98.0		90.0	110.0
	Copper	0.5000	0.5028	100.6		90.0	110.0
	Iron	0.5000	0.5274	105.5		90.0	110.0
	Lead	2.5000	2.5552	102.2		90.0	110.0
	Magnesium	5.0000	4.9693	99.4		90.0	110.0
	Manganese	0.5000	0.5043	100.9		90.0	110.0
	Nickel	1.0000	1.0127	101.3		90.0	110.0

's Batch Number: ICPWA-10/03/94-1080-2
Tes entification : ICPWA-Metals by ICP Units: mg/l Sequence: A10039T
umber of Samples : 24
atch Data-Date/Time : 10/04/94 / 02:21:13

CV #	ANALYTE	TRUE VALUE	BATCH READ	% REC	#	QC LIMITS LOWER	QC LIMITS UPPER
8	Potassium	25.0000	27.4031	109.6		90.0	110.0
	Selenium	2.5000	2.4962	99.8		90.0	110.0
	Silver	0.2500	0.2403	96.1		90.0	110.0
	Sodium	25.0000	24.0532	96.2		90.0	110.0
	Zinc	0.5000	0.4840	96.8		90.0	110.0

STANDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Aluminum	03/01/95	10/03/94	149
	Antimony	02/01/95	10/03/94	121
	Barium	11/01/94	10/03/94	29
	Beryllium	09/01/95	10/03/94	333
	Cadmium	09/01/95	10/03/94	333
	Chromium	10/01/95	10/03/94	363
	Cobalt	10/01/95	10/03/94	363
	Copper	06/01/95	10/03/94	241
	Iron	10/01/95	10/03/94	363
	Lead	06/01/95	10/03/94	241
	Magnesium	11/01/94	10/03/94	29
	Manganese	02/01/95	10/03/94	121
	Nickel	02/01/95	10/03/94	121
	Potassium	11/01/94	10/03/94	29
	Selenium	02/01/95	10/03/94	121
	Silver	09/01/95	10/03/94	333
	Sodium	06/01/95	10/03/94	241
	Zinc	10/01/95	10/03/94	363

------------------------------ Result Footnotes ------------------------------

(2a) - Spike Recovery is valid because the sample conc. is 4 times > than the spike conc.
(A) - Matrix Interference
(11) - Both Duplicate results are less than the LOQ.
(B) - Incomplete Homogenization
(3a) - Duplicate is valid because the result is less than 5 times the LOQ
(CC) - The analyte CCV was not required to bracket data reported.

Groups & Samples

13780-74723 13780-74724 13780-74726 13780-74729 13780-74730 13780-74732 13780-74734 13780-74736
13780-74737 13780-74738 13780-74741 13780-74742 13781-74743 13781-74744 13781-74745 13781-74746
13781-74747 13781-74748 13781-74749 13781-74750 13845-75471 13845-75472 13845-75473 13845-75474
13845-75547 13922-75986 13922-75987 13926-76004 13933-76048

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:33
Group: 13781

A[illegible]s Batch Number: ICPWA-10/04/94-1114-1
Test identification : ICPWA-Metals by ICP
Number of Samples : 9
Batch Data-Date/Time : 10/04/94 / 16:43:12

Units: mg/l
Sequence: A100494

BLANK#	ANALYTE	CONC FOUND #	LMT OF QUANTITATION
PBW2-093094	Aluminum	ND	0.2000
	Antimony	0.0073	0.0400
	Barium	0.0002	0.1000
	Beryllium	ND	0.0050
	Cadmium	ND	0.0050
	Chromium	0.0022	0.0100
	Cobalt	ND	0.0250
	Copper	ND	0.0250
	Nickel	ND	0.0400
	Silver	ND	0.0100
	Vanadium	ND	0.0500
	Zinc	0.0002	0.0400

SPIKE SAMPLE#	ANALYTE	CONC ADDED	CONC SAMPLE	CONC SPIKE	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
13781-74749	Vanadium	0.5000	0.0300	0.4333	80.7	75.0	125.0

DUPLICATE SAMPLE#	ANALYTE	RESULT 1	RESULT 2	RPD #	LIMIT	DILUTION
[illegible]1-74748	Vanadium	0.0300	0.0383	24.3(11)	20.0	1.00

CONTROL SAMPLE#	ANALYTE	CONC FOUND	CONC KNOWN	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
LCSW2-093094	Aluminum	1.8730	2.0000	93.7	80.0	120.0
	Antimony	0.4567	0.5000	91.3	80.0	120.0
	Barium	1.8820	2.0000	94.1	80.0	120.0
	Beryllium	0.0504	0.0500	100.8	80.0	120.0
	Cadmium	0.0497	0.0500	99.4	80.0	120.0
	Chromium	0.2119	0.2000	106.0	80.0	120.0
	Cobalt	0.4527	0.5000	90.5	80.0	120.0
	Copper	0.2481	0.2500	99.2	80.0	120.0
	Nickel	0.4520	0.5000	90.4	80.0	120.0
	Silver	0.0472	0.0500	94.4	80.0	120.0
	Vanadium	0.4394	0.5000	87.9	80.0	120.0
	Zinc	0.4371	0.5000	87.4	80.0	120.0

CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC #	QC LIMITS LOWER	QC LIMITS UPPER
1	Aluminum	2.5000	2.5844	103.4	90.0	110.0
	Antimony	5.0000	4.9146	98.3	90.0	110.0
	Barium	0.5000	0.4952	99.0	90.0	110.0
	Beryllium	0.5000	0.4937	98.7	90.0	110.0
	Cadmium	0.5000	0.5150	103.0	90.0	110.0
	Chromium	0.5000	0.5011	100.2	90.0	110.0
	Cobalt	1.0000	0.9807	98.1	90.0	110.0
	Copper	0.5000	0.5030	100.6	90.0	110.0
	Nickel	1.0000	1.0069	100.7	90.0	110.0
	Silver	0.2500	0.2410	96.4	90.0	110.0
	Vanadium	2.5000	2.4059	96.2	90.0	110.0
	Zinc	0.5000	0.4796	95.9	90.0	110.0

Gulf States Analytical, Inc.
Daily QC Batching Data
Data Released for Reporting

10/06/94
14:36:35
Group: 1378

is Batch Number: ICPWA-10/04/94-1114-1
T dentification : ICPWA-Metals by ICP
Number of Samples : 9
Batch Data-Date/Time : 10/04/94 / 16:43:12

Units: mg/l

Sequence: A100494

						QC LIMITS	
CCV #	ANALYTE	TRUE VALUE	BATCH READ	% REC	#	LOWER	UPPER
2	Aluminum	2.5000	2.5560	102.2		90.0	110.0
	Antimony	5.0000	4.9571	99.1		90.0	110.0
	Barium	0.5000	0.4887	97.7		90.0	110.0
	Beryllium	0.5000	0.4920	98.4		90.0	110.0
	Cadmium	0.5000	0.5143	102.9		90.0	110.0
	Chromium	0.5000	0.4999	100.0		90.0	110.0
	Cobalt	1.0000	0.9815	98.2		90.0	110.0
	Copper	0.5000	0.4984	99.7		90.0	110.0
	Nickel	1.0000	1.0063	100.6		90.0	110.0
	Silver	0.2500	0.2410	96.4		90.0	110.0
	Vanadium	2.5000	2.4040	96.2		90.0	110.0
	Zinc	0.5000	0.4840	96.8		90.0	110.0
3	Aluminum	2.5000	2.5376	101.5		90.0	110.0
	Antimony	5.0000	4.9024	98.0		90.0	110.0
	Barium	0.5000	0.4850	97.0		90.0	110.0
	Beryllium	0.5000	0.4885	97.7		90.0	110.0
	Cadmium	0.5000	0.5155	103.1		90.0	110.0
	Chromium	0.5000	0.4962	99.2		90.0	110.0
	Cobalt	1.0000	0.9729	97.3		90.0	110.0
	Copper	0.5000	0.4957	99.1		90.0	110.0
	Nickel	1.0000	1.0008	100.1		90.0	110.0
	Silver	0.2500	0.2388	95.5		90.0	110.0
	Vanadium	2.5000	2.3867	95.5		90.0	110.0
	Zinc	0.5000	0.4811	96.2		90.0	110.0

STANDARD#	ANALYTE	DATE EXP	BATCH DATE	DAYS/EXP
1	Aluminum	03/01/95	10/04/94	148
	Antimony	02/01/95	10/04/94	120
	Barium	11/01/94	10/04/94	28
	Beryllium	09/01/95	10/04/94	332
	Cadmium	09/01/95	10/04/94	332
	Chromium	10/01/95	10/04/94	362
	Cobalt	10/01/95	10/04/94	362
	Copper	06/01/95	10/04/94	240
	Nickel	02/01/95	10/04/94	120
	Silver	09/01/95	10/04/94	332
	Vanadium	10/01/95	10/04/94	362
	Zinc	10/01/95	10/04/94	362

----------------------------- Result Footnotes -----------------------------

(11) - Both Duplicate results are less than the LOQ.

----------------------------- Batch Notes -----------------------------

ALL OTHER SAMPLES AND QC ON BATCH ICPWA-10/03/94-1080-2.

```
                              Gulf States Analytical, Inc.                       10/06/94
                                Daily QC Batching Data                           14:36:37
                              Data Released for Reporting                        Group: 137

 ysis Batch Number: ICPWA-10/04/94-1114-1
  Identification  : ICPWA-Metals by ICP              Units: mg/l       Sequence: A100494
Number of Samples  :   9
Batch Data-Date/Time : 10/04/94 / 16:43:12


   Groups  &  Samples
   ------------------------------
    13781-74743   13781-74744   13781-74745   13781-74746   13781-74747   13781-74748   13781-74749   13781-74750
    13845-75471
```

GULF STATES ANALYTI , INC.
6310 Rothway
Houston, Texas 77040, (713) 690-4444, FAX (713) 690-5646

① Company: Golder Associates

Phone No: 713-931-8674

Fax No: 713-931-3246

Reports Sent To:
Golder Associates 77060
15603 W. Hardy STE 345 Houston, TX

Project Location: ELLIS I Landfill
TDCJ. Walker County, TX

Project Name: Ellis I Landfill

P.O./Project Number: 943-4245

Sampler(s) Name: (Signature) Jack Plitt

Courier: Jack Plitt

⑤ Request for An

② Field Sample ID	③ Sampling Date	Time	④ Matrix Water	Soil	Sludge	Oil	Other	# of Containers	Haz. Sample (Y/N)	GC BTEX	TPH: by 418.1 IR ☐ by 503E IR ☐	APP IX VOC	APP IX S-VOC	APP IX Pest/PCB	APP/IX Organophos/Pest	APP IX Herbicides	APP IX DIOXIN/FurAN	Sulfid	APP IX INORGANIC CN	CPMT
1. P1N (Normal)	19-Sept-94	1310	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
2. P2N		1350	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
3. P4N		1545	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
4. P5N		1615	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
5. P3N		1240	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
6. P3D (Duplicate)			✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
7. P3MS (Matrix Spike)			✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
8. P3MSD (MS Duplicate			✓									✓	✓	✓	✓	✓	✓	✓	✓	✓
9. P3EB (Equip Blank)		1230	✓									✓								
10. P3TB (Trip Blank		—	✓									✓								
11.																				
12.																				
13.																				
14.																				

⑥ Remarks: 8 ICE CHEST

Requested Turnaround

Special Detection Limits

QC Package: (check one)
☐ CLP ☐ Site Specific
☐ Tier 1 ☐ Tier 2 ☐ QC Summa

⑦ Relinquished by Sampler: (Signature)
Date: 16-Sept-94 Time: 1000
Received by: (Signature) Jack Plitt

Relinquished by: (Signature)
Date: Time:
Received by: (Signature)

inquished by: (Signature) Jack Plitt
Date: 20-Sept-94 Time: 1301
Received by Laboratory: (Signature)

White Copy to Accompany Samples to Lab Yellow Copy Retained by Client

GULF STATES ANALYTICAL, INC.
SAMPLE RECEIPT CHECKLIST

LIENT: Golder Associates
CONTACT: Jay Winters

JECT: 1994 SEP 20 PM 1:01
CARRIER: Client

DATE RECV'D: 9-20-94
UNPACKED STAMP: 1994 SEP 20 PM 3:07

DATE SHIPPED: 9-20-94
UNPACKED BY: NJM

NUMBER OF KITS RECEIVED: 4
B.O.# 5542 GROUP # 13781

KIT CHECKLIST

KIT ID	COC PRESENT		CUSTODY TAPE PRESENT?	INTACT?	COOLER TEMP	# OF SAMPLE CONTAINERS
229	yes	C	yes	yes	07°C	16
		B	no	no		
757	yes	C	yes	yes	08°C	19
		B	no	no		
778	yes	C	yes	yes	06°C	16
		B	no	no		
521	yes	C	yes	yes	06°C	18
		B	no	no		

C = COOLER B = BOTTLES

INCONSISTENCIES

SAMPLE	PARAMETER	INCONSISTENCY

PRESERVATIVES CHECKED? YES ✓ NO ______ SEE ABOVE NOTES ______

ACTION TAKEN

PERSON CONTACTED: ______ DATE: ______

RESOLUTION ______

GSAI EMPLOYEE ______ DATE: ______

5 HNO3 12 HCL ☐ H2SO4 5 NAOH 40 Na2S2O3 ☐ NEAT 7 64 water

12 VOA WET

VOA NAOH/ZnAc
~~OTHER~~

ProjectManager

S.A. 152.05

GULF STATES ANALYTICAL, INC.
SAMPLE RECEIPT CHECKLIST

ENT: Golder Associates　　　CONTACT: J. Winter

JECT: 1994 SEP 20 PM 1:01　　　CARRIER: ~~1994 SEP 20 PM 3:07~~ Client

RECV'D: 9-20-94　　　UNPACKED STAMP:

SHIPPED: 9-20-94　　　UNPACKED BY: MJM

BER OF KITS RECEIVED:　　　B.O.# 5542　GROUP # 13781

KIT CHECKLIST

T ID	COC PRESENT	CUSTODY TAPE PRESENT?	CUSTODY TAPE INTACT?	COOLER TEMP	# OF SAMPLE CONTAINERS
73	Yes	C Yes B no	Yes no	04°C	6
0	Yes	C Yes B no	Yes no	04°C	14
[illegible]	Yes	C Yes B no	Yes no	07°C	13
383	Yes	C Yes B no	Yes no	06°C	16

= OOLER　B = BOTTLES

INCONSISTENCIES

MPLE	PARAMETER	INCONSISTENCY
3MS	Dioxin	1 bottle broken in lab
3MSD	Dioxin	1 bottle broken in lab
MS D	Sulfide	no discription on label

ERVATIVES CHECKED? YES ✓ NO　SEE ABOVE NOTES

ACTION TAKEN

ON CONTACTED:　　　DATE:

LUTION

EMPLOYEE　　　DATE:

HNO3 ☐15 HCL ☐ H2SO4 ☐2 NAOH ☐30 Na2S2O3 ☐ NEAT ☐49 water

15 VOA WET　　　VOA OTHER

ProjectManager

S.A. 152.05

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 1
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
						ATTERBERG LIMITS (%)							
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
1			P=1.5	20	100	46	16	30	88	1.76	6.8	0	FILL: Stiff gray SILTY CLAY
2													Gray SILTY FINE SAND -gray and tan below 2 ft
3 4			P=3.5										Very stiff gray, tan, and reddish-brown CLAY with ferrous nodules
5			P=4.5										Very stiff to hard gray and tan SANDY CLAY
6 7 8 9 10 11 12 13 14 15													Boring Terminated at 5 ft, 4 inches.

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

HBC1 92035324.GPJ 11/19/03

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 2
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
						ATTERBERG LIMITS (%)							
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
			P=1.5	22	99	51	16	35	88	1.72	15	0	FILL: Stiff gray CLAY
1													
			P=4.0	17	104	36	17	19	58				FILL: Very stiff to hard gray SANDY CLAY -Permeability = 8.7E-08 cm/sec
2													
			P=4.5+	8		23	16	7	51				-sand seams to 4 ft
3			P=4.5+	10	119								
4													-tan and gray below 4 ft
			P=4.5+										
5													
													Boring Terminated at 5.5 ft.
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

HBC1 92035324.GPJ 11/19/03

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 3
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
						ATTERBERG LIMITS (%)							
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
			P=4.5	17	102	34	14	20	43				FILL: Very stiff to hard gray and light gray SANDY CLAY with sand seams
1			P=4.5+	27		46	19	27	75				-silty, 1 to 2 ft
2													-gray below 2 ft
3			P=4.5+	17	105								
4			P=4.5+	17	95	33	16	17	54	1.18	4	0	FILL: Hard dark gray SANDY CLAY with debris
													Boring Terminated at 4 ft, 5 inches.
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

HBC1 92035324.GPJ 11/19/03

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 4
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
						ATTERBERG LIMITS (%)							
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
			P=1.5	17	110	33	15	18	61	1.34	5	0	FILL: Stiff gray SANDY CLAY
			P=4.5	18	104	34	14	20	50				-very stiff, tan below 1 ft
			P=4.5+	6		21	17	4	56				FILL: Very stiff to hard gray SANDY SILTY CLAY
			P=4.5+										FILL: Very stiff to hard brown SANDY CLAY -tan below 4 ft
			P=4.5+										
													Boring Terminated at 6 ft

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 5
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
													FILL: Stiff gray SILTY CLAY
1			P=2.3	20	99	46	17	29	92				**-Permeability = 1.7E-08 cm/sec**
2			P=3.8						26				-sand layer at approx. 2 ft -very stiff with sand pockets and partings, 2 to 4 ft
3			P=3.8	17	109	35	14	21	71				
4			P=4.5										-with organics below 4 ft
5													Boring Terminated at 5 ft
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 6
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
						ATTERBERG LIMITS (%)							
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
			P=2.3	15	101	36	13	23	53				FILL: Stiff tan and light gray SANDY CLAY
1			P=4.5	12	110	30	16	14	51				-very stiff below 1 ft **-Permeability = 1.20E-08 cm/sec**
2													-gray below 2 ft
3			P=4.5	13	107	32	15	17	56				
4													Dark gray SANDY SILT with debris
5													Boring Terminated at 5 ft
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 7
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
						ATTERBERG LIMITS (%)							
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT.	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
			P=1.8	21	103	47	15	32	91				FILL: Stiff dark gray SILTY CLAY
			P=2.8	9		21	15	6	34				FILL: Stiff gray CLAYEY SAND
1													
			P=4.5+	15	106	42	16	26	58				FILL: Hard light gray and tan SANDY CLAY with calcareous nodules
2													-gray below 2 ft
3			P=4.5+	9	117	28	16	12	50				-sand pockets, 2 to 4 ft
4													Hard gray SILTY CLAY
5			P=4.5+										
6													Boring Terminated at 6 ft
7													
8													
9													
10													
11													
12													
13													
14													
15													

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 8
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
						ATTERBERG LIMITS (%)							
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
			P=2.0	18	105	44	15	29	73				FILL: Stiff gray SILTY CLAY -SAND layer at 1 ft
1			P=4.5	16	96	33	15	18	40				Very stiff to hard light gray and tan SANDY CLAY -Permeability = 1.4E-08 cm/sec
2			P=4.5+										
3													
4				11		38	15	23	59				FILL: Gray SANDY CLAY with gravel -dark gray below 4.5 ft
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

LOG OF BORING

PROJECT: Landfill Closure
TDCJ Ellis Unit
Walker County, Texas

CLIENT: Texas Department of Criminal Justice
Huntsville, Texas

BORING NO. 9
PROJECT NO. 92035324
DATE 10-30-03
SURFACE ELEVATION Ex. Grade

PAGE 1 of 1

DRILLING METHOD(S):
Dry Auger

GROUNDWATER INFORMATION:
Not encountered

FIELD DATA				LABORATORY DATA									
DEPTH (FT)	SOIL SYMBOL	SAMPLES	N: BLOWS/FT T: INCHES/100 BLOWS P: TONS/SQ FT R: PERCENT RQD: PERCENT	MOISTURE CONTENT (%)	DRY DENSITY POUNDS/CU.FT	ATTERBERG LIMITS (%) LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	MINUS NO. 200 SIEVE (%)	COMPRESSIVE STRENGTH (TONS/SQ FT)	FAILURE STRAIN (%)	CONFINING PRESSURE (POUNDS/SQ IN)	DESCRIPTION OF STRATUM
0			P=4.5+										FILL: Gray and tan SANDY CLAY
2				7		26	17	9	51				
3													Tan SILTY FINE SAND
4													Hard tan and reddish-tan SANDY SILTY CLAY
6													Boring Terminated at 6 ft

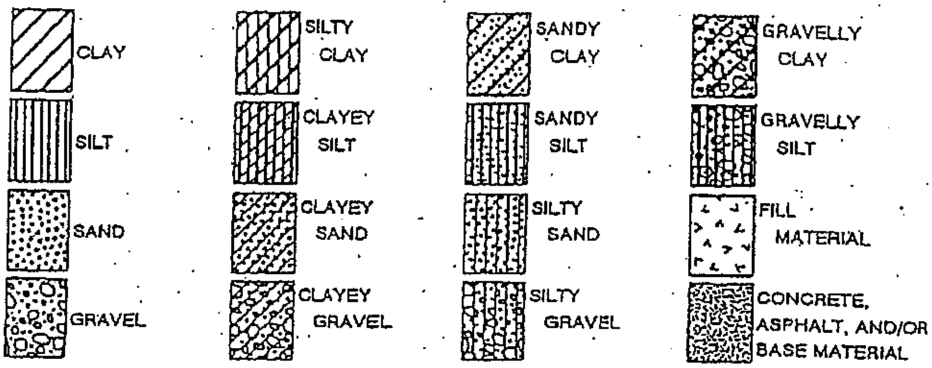
N - STANDARD PENETRATION TEST RESISTANCE
T - TXDOT CONE PENETRATION RESISTANCE
P - POCKET PENETROMETER RESISTANCE
R - PERCENTAGE OF ROCK CORE RECOVERY
RQD - ROCK QUALITY DESIGNATION

REMARKS:

HBC Terracon

KEY TO SOIL CLASSIFICATIONS AND SYMBOLS

SOIL TYPES



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance (blows per foot)	Consistency	Undrained Compressive Strength (tsf)
0 - 2	Very Soft	0 - 0.25
2 - 4	Soft	0.25 - 0.5
4 - 8	Firm	0.5 - 1.0
8 - 15	Stiff	1.0 - 2.0
15 - 30	Very Stiff	2.0 - 4.0
> 30	Hard	> 4.0

PLASTICITY OF COHESIVE SOILS

Plasticity Index	Degree of Plasticity
0 - 5	None
5 - 10	Low
10 - 20	Moderate
20 - 40	Plastic
> 40	Highly Plastic

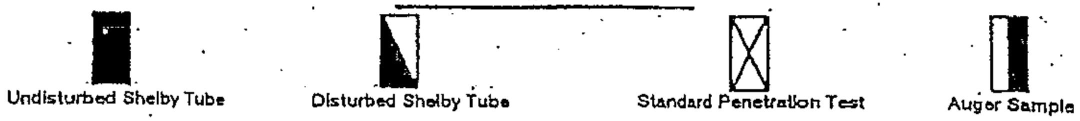
RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance (blows per foot)	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

TERMS CHARACTERIZING SOIL STRUCTURE

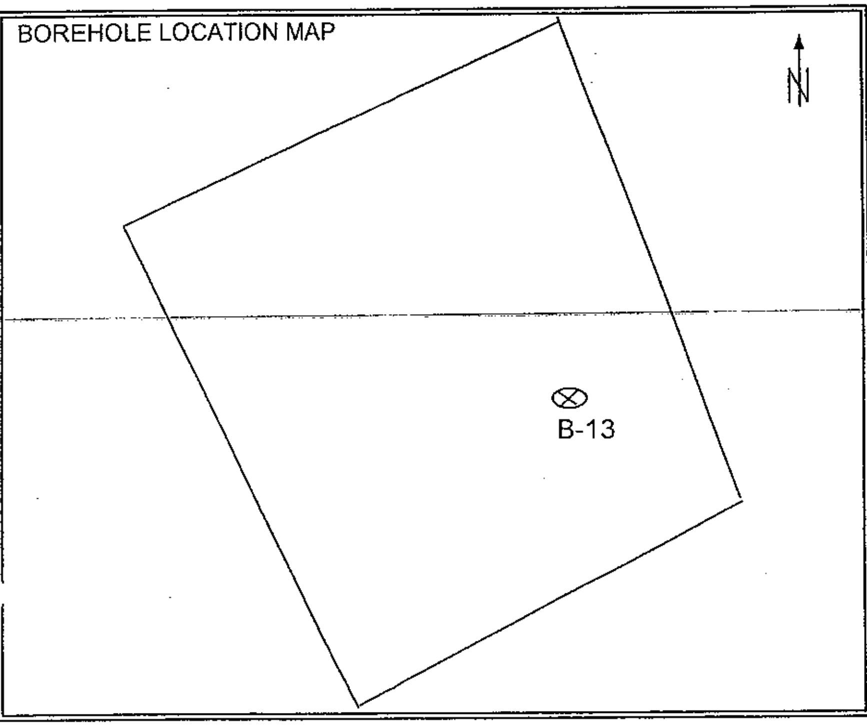
Slickensided	- having inclined planes of weakness that are slick and glossy in appearance
Fissured	- containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical
Laminated	- composed of thin layers of varying color and texture
Interbedded	- composed of alternate layers of different soil types
Calcareous	- containing appreciable quantities of calcium carbonate

SAMPLER TYPES



Boring ID:	B-13		
Monitoring Well ID:	N/A		
Project Number:	**S1286**	Project Name:	**TDCJ-Ellis Unit**
Client:	**TDCJ**		
Site:	**Ellis Unit**		
Borehole Location:			
Logged By:	L. McGarrah		
Reviewed By:		Review Date:	
Drilling Contractor:	**Advanced Drilling**		
Drill Rig Type/Method:	**Hollow Stem Auger**		
Sampler Type:	**2" Split Spoon**		
Borehole Diameter (inches):	4"	feet bgs	4
Overdrilled Diameter (inches):		to:	feet bgs
Drill Start Date:	11/28/2006	Drill Start Time:	1304
Drill Finish Date:	11/28/2006	Drill Finish Time:	1354
Total Borehole Depth (feet bgs):	**4**		
Soil Boring Backfill Date:	11/28/2006	Soil Boring Backfill Time:	
Ground Surface Reference Elevation (feet msl):			
Depth to Target Zone (feet bgs):	N/A	Date:	Time:
Depth to Other Water-Bearing Zones (feet bgs):	**N/A**		
Depth to Water After Drilling (feet bgs):	**N/A**		
Well Completion Date:	N/A	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter (inches):		Well Casing Material:	
Static Water Level After Well Installation (feet bgs):			

BOREHOLE LOCATION MAP



NOTES/REMARKS

DATE: 11/28/2006
LOGGED BY: L. McGarrah

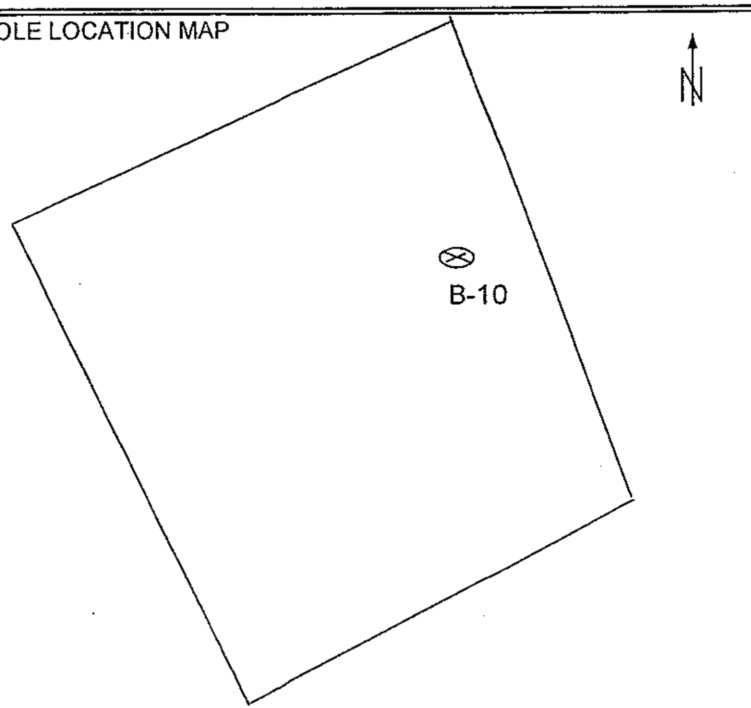
Page 2 **of** 2

BORING ID: B-13 MW ID:

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft²)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
	1304	48/60		0	0			0'-6" Top soil, dark brown, with roots and organic matter
				↓	1	CL	▨	6"-1' Sandy Clay (CL), dark brown, poorly sorted, loose, moist
							▨	1'-2' Sandy Clay (CL), brown with some orange mottling, very compact
					2	CL	▨	2'-3' Sandy Clay (CL) orange brown, very compact, some coarse grains
							▨	
					3	CL	▨	3'-4' Same as above with lenses of debris, newspaper, decomposing matter
							▨	4' Organic decomposing matter, very deep black, some oder
					4	CL	▨	some glass present
							■	
							■	
					5			
					6			
					7			
					8			
	1354							Collected shelby tubes @ 1354 1@6"-2.5' and 1@2.5'-4'
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

Boring ID:	B-10		
Monitoring Well ID:	N/A		
Project Number:	S1286	Project Name:	TDCJ-Ellis Unit
Client:	TDCJ		
Site:	Ellis Unit		
Borehole Location:			
Logged By:	L. McGarrah		
Reviewed By:		Review Date:	
Drilling Contractor:	Advanced Drilling		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	2" Split Spoon		
Borehole Diameter (inches):	4"	feet bgs	6
Overdrilled Diameter (inches):		to:	feet bgs
Drill Start Date:	11/28/2006	Drill Start Time:	1545
Drill Finish Date:	11/28/2006	Drill Finish Time:	1604
Total Borehole Depth (feet bgs):	6		
Soil Boring Backfill Date:	11/28/2006	Soil Boring Backfill Time:	
Ground Surface Reference Elevation (feet msl):			
Depth to Target Zone (feet bgs):	N/A	Date:	Time:
Depth to Other Water-Bearing Zones (feet bgs):	N/A		
Depth to Water After Drilling (feet bgs):	N/A	-	
Well Completion Date:	N/A	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter (inches):		Well Casing Material:	
Static Water Level After Well Installation (feet bgs):			

BOREHOLE LOCATION MAP



NOTES/REMARKS

DATE: 11/28/2006
LOGGED BY: L. McGarrah

Page 2 **of** 2

BORING ID: B-10 MW ID:

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft²)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
☒	1545	60/60		0	0			0'-6" Top soil, dark brown, with roots and organic matter
					1	CL	▨	6"-1' Sandy Clay (CL), dark brown, very plastic, very compact, moist
							▨	1'-2' Sandy Clay (CL), light gray with some pebbles, very compact,
					2	CL	▨	plastic
							▨	2'-3' Sandy Clay (CL) medium brown with orange mottling, very compact,
					3	CL	▨	stiff, dry
							▨	3'-4' Sandy clay, medium brown, some pebbles, very compact,dry
					4	CL	▨	organic matter in lower 1"
							▨	
				↓	5		▨	
☒	1556	12"/60		0		CL	▨	4'-6' Sandy clay, medium brown, some pebbles, very compact, dry
				↓	6	Cl	▨	*6' - 4" layer of sand- dark brown, loose, dry
					7			
						-		
	1604				8			Collected shelby tubes @ 1604 1@6"-3.5' and 1@3.5'-5'
					9			Ist push debris blocking shelby tube, shelby decon and repushed
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

Boring ID: **B-11**

Monitoring Well ID: **N/A**

Project Number: **S1286** Project Name: **TDCJ-Ellis Unit**

Client: **TDCJ**

Site: **Ellis Unit**

Borehole Location:

Logged By: L. McGarrah

Reviewed By: Review Date:

Drilling Contractor: **Advanced Drilling**

Drill Rig Type/Method: **Hollow Stem Auger**

Sampler Type: **2" Split Spoon**

Borehole Diameter (inches): 4" feet bgs 6

Overdrilled Diameter (inches): to: feet bgs

Drill Start Date: 11/28/2006 Drill Start Time: 1103

Drill Finish Date: 11/28/2006 Drill Finish Time: 1150

Total Borehole Depth (feet bgs): **6**

Soil Boring Backfill Date: 11/28/2006 Soil Boring Backfill Time:

Ground Surface Reference Elevation (feet msl):

Depth to Target Zone (feet bgs): N/A Date: Time:

Depth to Other Water-Bearing Zones (feet bgs): **N/A**

Depth to Water After Drilling (feet bgs): **N/A**

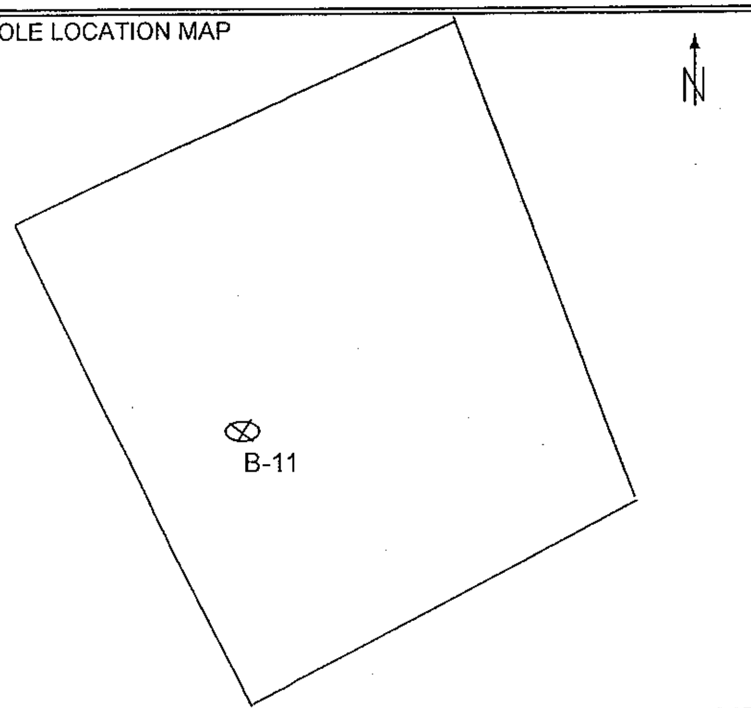
Well Completion Date: N/A Well Completion Time:

Screen Interval (feet bgs): Total Well Depth (feet bgs):

Well Diameter (inches): Well Casing Material:

Static Water Level After Well Installation (feet bgs):

BOREHOLE LOCATION MAP



NOTES/REMARKS

DATE: 11/28/2006
LOGGED BY: L. McGarrah

BORING ID: B-11 MW ID:

Page 2 **of** 2

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft^2)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
☒	1103	54/60		0	0			0'-6" Top soil, dark brown, with roots and organic matter
				↓	1	CL	▨	6"-1' Sandy Clay (CL), dark brown, plastic, very compact, moist
							▨	1'-2' Sandy Clay (CL), gray, plastic, moist
					2	CL	▨	2'-3' Sandy Clay (CL) Dark brown, coarse grains, very compact, dry
							▨	with some orgainc matter
					3	CL	▨	3'-4' Sandy clay (CL) light brown, some coarse grains, loose
							▨	4'-5' Sandy clay (SC) orange with light orange and gray mottling, very
					4	CL	▨	compact,dry
							▨	
				↓	5	SC	▨	
☒	1125	12"/60		0		SC	▨	5'-6' Sandy Clay (SC), orange, with light orange and gray mottling,
				↓	6	SC	▨	very compact, dry
					7			
					8		*Between 1'and 2'- Two one inch lenses of sand-	
							1.1' Sand (SC) dark brown, medium grain, loose, moist	
					9		1.6' Sand (SM) light brown, loose, moist	
					10			
	1150				11			Collected shelby tubes @ 1150 1@6"-2' and 1@3'-6'
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

Boring ID: B-12

Monitoring Well ID: N/A

Project Number: **S1286** | Project Name: **TDCJ-Ellis Unit**

Client: **TDCJ**

Site: **Ellis Unit**

Borehole Location:

Logged By: L. McGarrah

Reviewed By: | Review Date:

Drilling Contractor: **Advanced Drilling**

Drill Rig Type/Method: **Hollow Stem Auger**

Sampler Type: **2" Split Spoon**

Borehole Diameter (inches): 4" feet bgs 6

Overdrilled Diameter (inches): to: feet bgs

Drill Start Date: 11/28/2006 | Drill Start Time: 1504

Drill Finish Date: 11/28/2006 | Drill Finish Time: 1537

Total Borehole Depth (feet bgs): **6**

Soil Boring Backfill Date: 11/28/2006 | Soil Boring Backfill Time:

Ground Surface Reference Elevation (feet msl):

Depth to Target Zone (feet bgs): N/A | Date: | Time:

Depth to Other Water-Bearing Zones (feet bgs): **N/A**

Depth to Water After Drilling (feet bgs): **N/A**

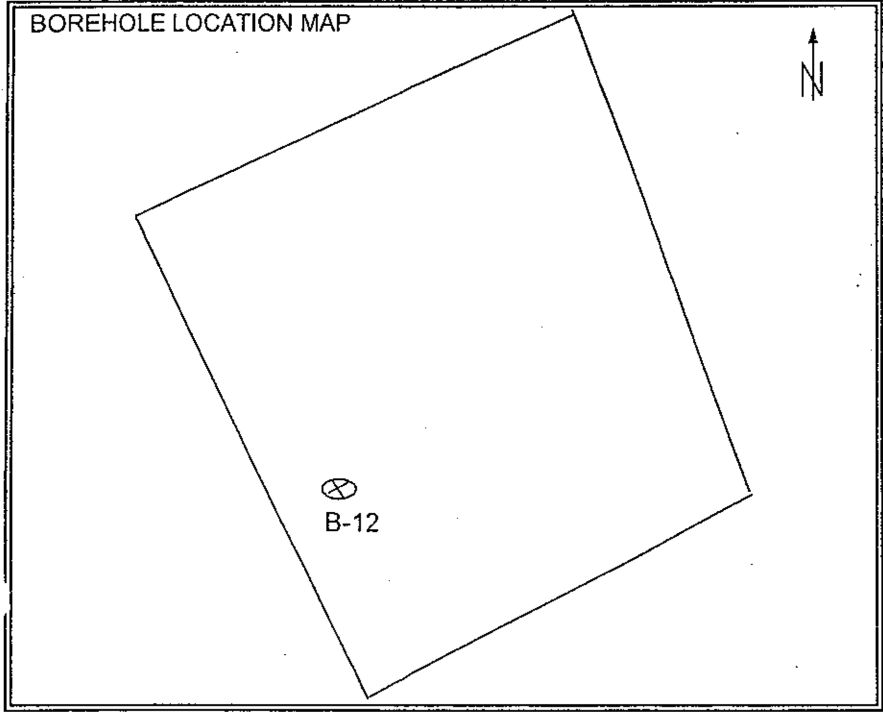
Well Completion Date: N/A | Well Completion Time:

Screen Interval (feet bgs): | Total Well Depth (feet bgs):

Well Diameter (inches): | Well Casing Material:

Static Water Level After Well Installation (feet bgs):

BOREHOLE LOCATION MAP



NOTES/REMARKS

DATE: 11/28/2006
LOGGED BY: L. McGarrah

BORING ID: B-12 MW ID:

Page 2 of 2

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft^2)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
	1504	60/60		0	0			0'-6" Top soil, dark brown, with roots and organic matter
					1	CL	▨	6"-1.5' Sandy Clay (CL), dark brown, with light brown mottling, very compact,
						SC	▨	1.5'-2' Clayey Sand (SC), dark brown coarse, loose, some pebbles
					2	CL	▨	
							▨	2'-4' Sandy Clay (CL) orange with light brown mottling, stiff, very compact,
					3	CL	▨	moist
							▨	4'-5' Sandy clay, dark brown, some pebbles, very compact,dry
					4	CL	▨	
							▨	
				↓	5		▨	
		12"/60		0		CL	▨	5'-6' Silty clay (CL), orange with some gray mottling, very fine, loose, damp
				↓	6	CL	▨	
					7			
					8			
	1537							Collected shelby tubes @ 1537 1@6"-2.5' and 1@2.5'-3.5'
					9			Shelby tubes only collected to 3.5' Hit refusal at 3.5'
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

Boring ID: B-14

Monitoring Well ID: N/A

Project Number: **S1286** | Project Name: **TDCJ-Ellis Unit**

Client: **TDCJ**

Site: **Ellis Unit**

Borehole Location:

Logged By: L. McGarrah

Reviewed By: | Review Date:

Drilling Contractor: **Advanced Drilling**

Drill Rig Type/Method: **Hollow Stem Auger**

Sampler Type: **2" Split Spoon**

Borehole Diameter (inches): 4" feet bgs 6

Overdrilled Diameter (inches): to: feet bgs

Drill Start Date: 11/28/2006 | Drill Start Time: 1430

Drill Finish Date: 11/28/2006 | Drill Finish Time: 1435

Total Borehole Depth (feet bgs): 6

Soil Boring Backfill Date: 11/28/2006 | Soil Boring Backfill Time:

Ground Surface Reference Elevation (feet msl):

Depth to Target Zone (feet bgs): N/A | Date: | Time:

Depth to Other Water-Bearing Zones (feet bgs): **N/A**

Depth to Water After Drilling (feet bgs): **N/A** -

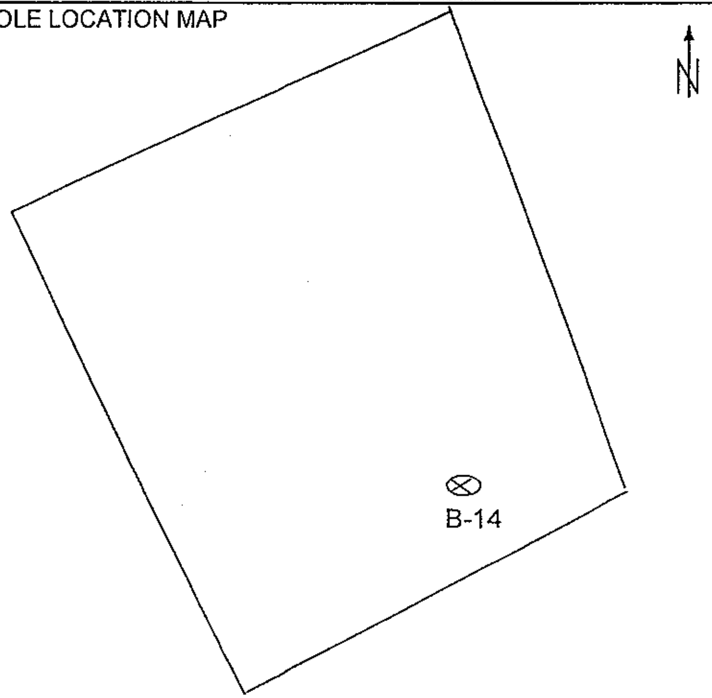
Well Completion Date: N/A | Well Completion Time:

Screen Interval (feet bgs): | Total Well Depth (feet bgs):

Well Diameter (inches): | Well Casing Material:

Static Water Level After Well Installation (feet bgs):

BOREHOLE LOCATION MAP



NOTES/REMARKS

DATE: 11/28/2006
LOGGED BY: L. McGarrah

BORING ID: B-14 MW ID:

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft^2)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
	1420	60/60		0	0			0'-6" Top soil, dark brown, with roots and organic matter
				↓	1	CL	▨	6"-1' Sandy Clay (CL), dark brown, very plastic, very compact, moist
							▨	1'-2' Sandy Clay (CL), gray with some orange mottling, very compact,
					2	CL	▨	plastic, moist @ 1.1' -1" lens of sand, light brown with some pebbles
							▨	2'-4' Sandy Clay (CL) medium brown with orange mottling, very compact,
					3	CL	▨	some organic matter
							▨	4'-5' Sandy clay, medium brown, some pebbles, very compact,dry
					4	CL	▨	
							▨	
							▨	
	1425	12"/60		0	5	CL	▨	5'-6' Sandy clay, medium brown, some pebbles, very compact, dry
				↓	6	CI	▨	*near 6' - 1" lens of sand- dark brown, loose, dry
					7			
	1435				8			Collected shelby tubes @ 1435 1@6"-2.5' and 1@2.5'-5'
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

Tt

Boring ID: B-15

Monitoring Well ID: **N/A**

Project Number: **S1286** Project Name: **TDCJ-Ellis Unit**

Client: **TDCJ**

Site: **Ellis Unit**

Borehole Location:

Logged By: L. McGarrah

Reviewed By: Review Date:

Drilling Contractor: **Advanced Drilling**

Drill Rig Type/Method: **Hollow Stem Auger**

Sampler Type: **2" Split Spoon**

Borehole Diameter (inches): 4" feet bgs 7

Overdrilled Diameter (inches): to: feet bgs

Drill Start Date: 11/28/2006 Drill Start Time: 1205

Drill Finish Date: 11/28/2006 Drill Finish Time: 1242

Total Borehole Depth (feet bgs): **7**

Soil Boring Backfill Date: 11/28/2006 Soil Boring Backfill Time:

Ground Surface Reference Elevation (feet msl):

Depth to Target Zone (feet bgs): N/A Date: Time:

Depth to Other Water-Bearing Zones (feet bgs): **N/A**

Depth to Water After Drilling (feet bgs): **N/A**

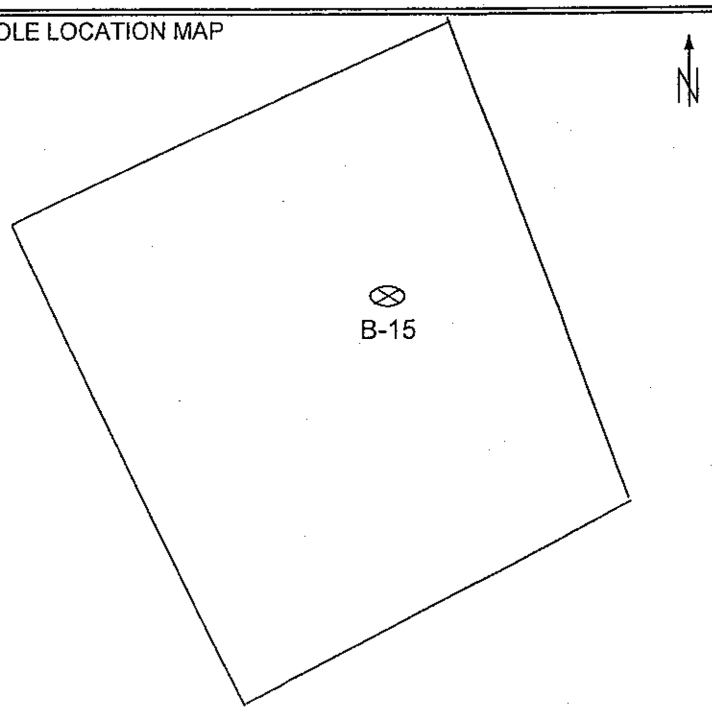
Well Completion Date: N/A Well Completion Time:

Screen Interval (feet bgs): Total Well Depth (feet bgs):

Well Diameter (inches): Well Casing Material:

Static Water Level After Well Installation (feet bgs):

BOREHOLE LOCATION MAP



NOTES/REMARKS

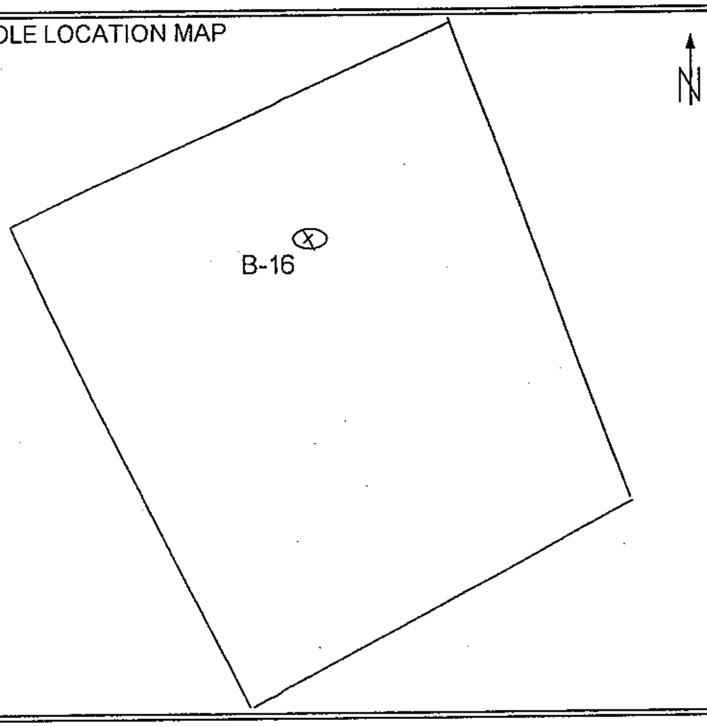
DATE: 11/28/2006
LOGGED BY: L. McGarrah

BORING ID: B-15 MW ID:

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft²)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
☒	1220	54/60		0	0	CL	▩	0'-6" Sandy Clay (CL), dark brown, with roots and organic matter
				↓	1	SC	▨	6"-1' Clayey Sand (SC), light gray with orange mottling, very compact
							▩	1'-2' Silty Clay (CL), gray, very compact, dry
					2	CL	▩	2'-3' Sandy Clay (CL) light brown, very compact, some pebbles and lenses
							▩	of clay bands
					3	CL	▩	3'-4' Sandy clay (CL) light brown, some coarse grains, very compact
							▩	4'-5' Organic decomposing matter, very deep black, some oder
					4	CL	▩	some debris present
							■	
				↓	5		■	
☒	1236	24"/60		0			■	5'-7' Organic decomposing matter, very deep black, some oder
				↓	6		■	some debris present
							■	
					7		■	
					8			
	1242							Collected shelby tubes @ 1242 1@6"-2.5' and 1@2.5'-3.5'
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

Boring ID:	**B-16**		
Monitoring Well ID:	**N/A**		
Project Number:	**S1286**	Project Name:	**TDCJ-Ellis Unit**
Client:	**TDCJ**		
Site:	**Ellis Unit**		
Borehole Location:			
Logged By:	L. McGarrah		
Reviewed By:		Review Date:	
Drilling Contractor:	**Advanced Drilling**		
Drill Rig Type/Method:	**Hollow Stem Auger**		
Sampler Type:	**2" Split Spoon**		
Borehole Diameter (inches):	4"	feet bgs	6
Overdrilled Diameter (inches):		to:	feet bgs
Drill Start Date:	11/28/2006	Drill Start Time:	1002
Drill Finish Date:	11/28/2006	Drill Finish Time:	1040
Total Borehole Depth (feet bgs):	**6**		
Soil Boring Backfill Date:	11/28/2006	Soil Boring Backfill Time:	
Ground Surface Reference Elevation (feet msl):			
Depth to Target Zone (feet bgs):	N/A	Date:	Time:
Depth to Other Water-Bearing Zones (feet bgs):	**N/A**		
Depth to Water After Drilling (feet bgs):	**N/A**		
Well Completion Date:	N/A	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter (inches):		Well Casing Material:	
Static Water Level After Well Installation (feet bgs):			

BOREHOLE LOCATION MAP



NOTES/REMARKS

DATE: 11/28/2006
LOGGED BY: L. McGarrah

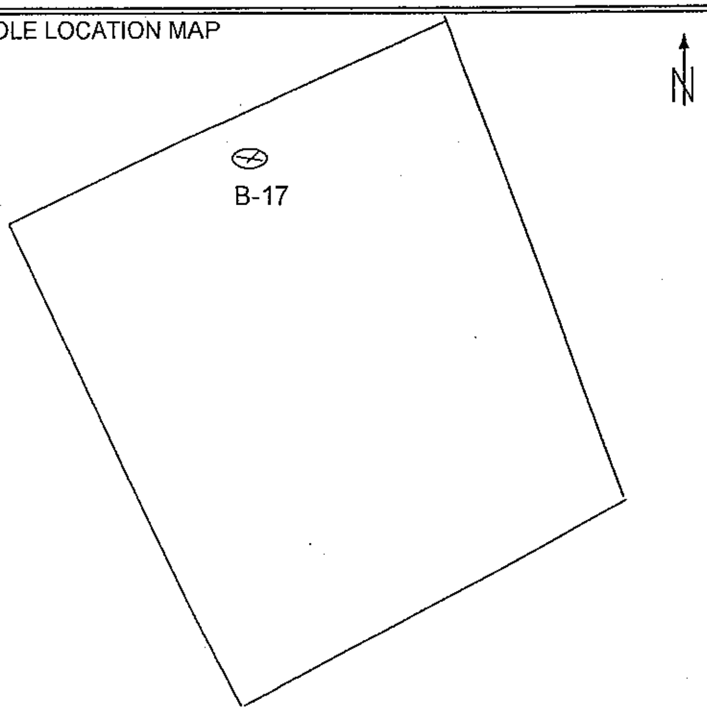
BORING ID: B-16 MW ID:

Page 2 **of** 2

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft^2)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
	1002	54/60		0	0			0'-6" Humus (PT), with roots and organic matter
				↓	1	CL		6"-10" Sandy Clay (CL), dark brown, plastic, very compact, moist
								10"-1.5" Clay (CL), gray, plastic, moist
					2	CL		2'-4' Sandy Clay (CL) brown, fine, loose, dry
								4'-5' Sandy clay (CL) dark brown, poorly sorted, with some debris
					3	CL		
					4	CL		
					5	CL		
	1025	12"/60		0		CL		5'-6' Sandy Clay (CL), red-orange, with gray mottling, medium stiff
				↓	6	CL		some moisture
					7			
					8			
	1040							Collected shelby tubes @ 1040 1@6"-2.5' and 1@2.5'-4'
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

Boring ID: B-17	
Monitoring Well ID: N/A	
Project Number: **S1286**	Project Name: **TDCJ-Ellis Unit**
Client: **TDCJ**	
Site: **Ellis Unit**	
Borehole Location:	
Logged By: L. McGarrah	
Reviewed By:	Review Date:
Drilling Contractor: **Advanced Drilling**	
Drill Rig Type/Method: **Hollow Stem Auger**	
Sampler Type: **2" Split Spoon**	
Borehole Diameter (inches): 4"	feet bgs 9
Overdrilled Diameter (inches):	to: feet bgs
Drill Start Date: 11/28/2006	Drill Start Time: 905
Drill Finish Date: 11/28/2006	Drill Finish Time: 945
Total Borehole Depth (feet bgs): **9**	
Soil Boring Backfill Date: 11/28/2006	Soil Boring Backfill Time:
Ground Surface Reference Elevation (feet msl):	
Depth to Target Zone (feet bgs): N/A	Date: Time:
Depth to Other Water-Bearing Zones (feet bgs): **N/A**	
Depth to Water After Drilling (feet bgs): **N/A**	-
Well Completion Date: N/A	Well Completion Time:
Screen Interval (feet bgs):	Total Well Depth (feet bgs):
Well Diameter (inches):	Well Casing Material:
Static Water Level After Well Installation (feet bgs):	

BOREHOLE LOCATION MAP



NOTES/REMARKS

DATE: 11/28/2006
LOGGED BY: L. McGarrah

BORING ID: B-17 MW ID:

Page 2 **of** 2

Sampler Type/ Interval	Time	Recovered/Driven (in./in.)	Pocket Penetrometer (tons/ft^2)	PID Reading (ppm)	Depth (feet bgs)	Lithologic Unit	USCS Type/Designation	Soil Description
	905	24/60		0	0			0'-6" top soil, with roots and organic matter
								1'-3' Rock in the way of the auger
					1		▨	3'-4' Silty sand (SM) fine grain, medium brown, loose, dry
							▨	4'-5' Clayey sand (SC) red-orange with gray mottling, medium stiff, moist
					2			
					3			
					4			
					5			
	924	42/60		0			■	5'-8' Sandy Clay (CL), orange, tightly compacted, some moisture
					6		▨	8'-9' Sand (SW), light brown, little to no fines, very loose, dry
					7			
					8			Moved 2 feet away from boring attempted shelby tube sample, hit refusal
								between 1'-3'
					9			Moved 2 feet away from 1st shelby tube attempt,hit refusal between 1'-3'
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			

LABORATORY COMPACTION CHARACTERISTICS OF SOIL

Report Number: 92035324.0001
Service Date: October 14, 2003

HBC
Terracon
11555 Clay Road, Suite 100
Houston, Texas 77043-1182
(713) 690-8989

Report Date: November 05, 2003

Client: Texas Department of Criminal Justice
Attn: Dennis Raymond
One Financial Plaza Ste 100
Huntsville TX 77340

Project: Landfill Closure
Ellis Unit
Walker County, TX

Project Number: 92035324

Material Information

Contractor: NA
Source of Material: Existing Landfill Cover
Proposed Use: Landfill Cover
USCS: CL

Sample Information

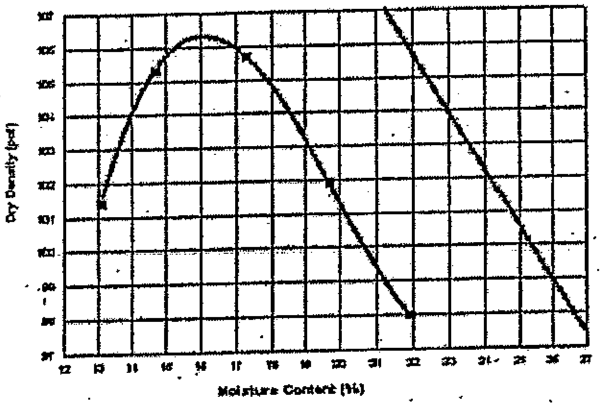
Sampled By: Felipe S. Gamez
Sample Location: Auger cuttings from B-1 thru B-8
Sample Description: Gray, tan & brown clay and sandy clay

Laboratory Test Data

Test Procedure: ASTM D698
Test Method: Method A
Sample Preparation: Wet Preparation
Rammer Type: Mech. Rammer
Maximum Dry Unit Weight, pcf: 106.3
Optimum Water Content, %: 16.1

	Result	Specifications
Liquid Limit:	40	Minimum 30
Plastic Limit:	15	
Plasticity Index:	25	Minimum 15
% Passing #200:	68.4	Minimum 30.0
% Passing #40:		

Moisture Density Relations
Zero Air Voids Curve for assumed specific gravity 2.70



Test results on this report meet project specifications as noted above.

Services-Obtain a sample of fill material at project site and return sample to laboratory, Prepare sample for plasticity index (ASTM D4318), percent passing #200 sieve (ASTM D1140) and moisture-density relations testing.

Technician: Felipe S. Gamez

Started: -

Finished: -

HBC/Terracon

Reviewed by:

Bobbie S. Hood
Professional II (Geotengr)

ATTACHMENT C

ELLIS LANDFILL CLOSURE CAP
BORING LOG DATA

Testing on 10/30/03

	Sample Depth ft.	Penetrameter tons/ sq ft	Moisture Content %	Dry Density lbs/ft	Liquid Limit	Plastic Limit	Plasticity Index	Minus 200 Sieve %	Comp. Strength tons/sq. ft.	Permeability cm/sec	Comments
Requirement	NA	NA	NA	NA	≥30		≥15	≥30		≤1x10^{-7}	
Boring #1	3"	1.5	20	100	46	16	≥30	88	1.76		Silty Clay
	2.5	3.5									Stiff clay
	4.5	4.5									Very stiff sandy clay
	5'4"	Boring Terminated									
Boring #2	3"	1.5	22	99	51	16	35	88	1.72		Stiff Clay
	1'	4	17	104	36	17	19	58		8.7x10^{-8}	Sandy Clay
	2'	4.5+	8		[redacted]	16	[redacted]	51			tan & gray clay below 4'
	3'	4.5+	10	119							
	4.6'	4.5'									
	5.5'	Boring Terminated									
Boring #3	3"	4.5	17	102	34	14	20	43			Very stiff sandy clay
	1'	4.5+	27		46	19	27	75			Silty to 2'
	2.6'	4.5+	17	105							gray below 2'
	4.5	4.5+	17	95	33	16	17	54	1.18		Hard dark clay w/ some debris
	4.5'	Boring terminated									
Boring #4	3"	1.5	17	110	33	15	18	61	1.34		Stiff sandy clay
	1.2'	4.5	18	104	34	14	20	50			Very stiff below 1ft
	2'	4.5+	6		[redacted]	17	[redacted]	56			Very stiff sandy clay
	3'	4.5+									Very stiff sandy clay
	4.8'	4.5+									Very stiff sandy clay
	6	Boring terminated									Very stiff sandy clay
Boring #5	.5'	2.3	20	99	46	17	29	92			Silty clay
	1.2'									1.7x10^{-8}	
	2.2'	3.8						[redacted]			Sand layer @2'
	3.2'	3.8	17	109	35	14	21	71			
	4.2	4.5									Some organics below 4'
	5.0'	Boring Terminated									

	Sample Depth ft.	Penetrameter tons/ sq ft	Moisture Content %	Dry Density lbs/ft	Liquid Limit	Plastic Limit	Plasticity Index	Minus 200 Sieve %	Comp. Strength tons/sq. ft.	Permeability cm/sec	Comments
Requirement	NA	NA	NA	NA	≥30		≥15	≥30		≤1x10^{-7}	
Boring #6	3"	2.3	15	101	36	13	23	53			Stiff sandy clay
	1.0'	4.5	12	110	30	16	14	51		1.2x10^{-8}	Very stiff below 1'
	2.6'	4.5	13	107	32	15	17	56			Very stiff clay
	4.0'										Dark Sandy Silt w/ debris
	5.0'	Boring Terminated									
Boring #7	3"	1.8	21	103	47	15	32	91			Silty clay
	.5'	2.8	9		23	15	8	34			Clayey sand
	1.0'	4.5+	15	106	42	16	26	58			Hard sandy clay
	2.6'	4.5+	9	117	28	16	12	50			Sandy clay
	4.6'	4.5+									Silty clay
	6.0'	Boring Terminated									
Boring #8	3"	2	18	105	44	15	29	73			Stiff sility clay
	1.0'	4.5	16	96	33	15	18	40		1.4x10^{-8}	Very stiff sandy clay
	4.0'		11		38	15	23	59			Sandy clay
	5.5'	Boring Terminated									
Boring #9	3"	4.5									
	1.6'		7		26	17	9	51			Sandy clay
	6.0'	Boring Terminated									

▨ Does not meet requirements

PTS File No: 36988
Client: Tetra Tech EM Inc.

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

(METHODOLOGY: ASTM D4318)

PROJECT NAME: TDCJ Ellis Unit
PROJECT NO: S1286

SAMPLE ID.	DEPTH, ft.	ATTERBERG LIMITS			USCS / PLASTICITY CHART SYMBOL (Fines: <#40 Sieve)
		LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
TDCJ-B-16	2.5'-4'	31.4	12.5	18.9	CL
TDCJ-B-11	6"-2'	44.7	14.5	30.2	CL
TDCJ-B-15	6"-2.5'	34.1	12.8	21.3	CL
TDCJ-B-13	6"-2.5'	33.6	13.0	20.6	CL
TDCJ-B-14	6"-2.5'	59.2	15.4	43.8	CH
TDCJ-B-12	6"-2.5'	49.8	16.3	33.5	CL
TDCJ-B-10	6"-3.5'	30.9	13.9	17.0	CL

F File No: 36988
Client: Tetra Tech EM Inc.

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY PACKAGE

PROJECT NAME: TDCJ Ellis Unit
PROJECT NO: S1286

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	API RP 40; ASTM D5084; EPA 9100	
									25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv	EFFECTIVE (4,5) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (4,5), cm/s
				BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED			
TDCJ-B-16	2.5'-4'	V	6.9	1.61	2.64	39.0	27.8	28.6	1.29	1.24E-06
TDCJ-B-11	6"-2'	V	18.6	1.59	2.57	38.4	8.8	77.0	0.374	3.60E-07
TDCJ-B-15	6"-2.5'	V	10.4	1.47	2.59	43.1	27.8	35.6	2.27	2.18E-06
TDCJ-B-13	6"-2.5'	V	14.7	1.60	2.59	37.9	14.3	62.3	0.167	1.60E-07

PHYSICAL PROPERTIES DATA - DRAULIC CONDUCTIVITY PACKAGE

PROJECT NAME: TDCJ Ellis Unit
PROJECT NO: S1286

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	API RP 40; ASTM D5084; EPA 9100	
									25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv	EFFECTIVE (4,5) PERMEABILITY TO WATER, millidarcy	HYDRAULIC CONDUCTIVITY (4,5), cm/s
				BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED			

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9996 g/cc (4) Native State or Effective = With as-received pore fluids in place (5) Permeability to water and hydraulic conductivity measured at saturated conditions; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

DATE PTS FILE# **CHAIN OF CUSTODY RECORD** 36988 PAGE 1 OF 2

COMPANY 350 N. ST PAUL ST Suite 2600
TETRA TECH EM INC DALLAS TX 75201
ADDRESS CITY ZIP CODE
ERIC Johnstone eric.johnstone@ttemi.com
PROJECT MANAGER
TDCJ Ellis Unit 214.740.2001
PROJECT NAME PHONE NUMBER
51286
PROJECT NUMBER FAX NUMBER
TDCJ Ellis Unit, Huntsville
SITE LOCATION
SAMPLER SIGNATURE

ANALYSIS REQUEST

PO#

SPECIAL HANDLING
24 HOURS 5 DAYS
72 HOURS NORMAL
OTHER

SAMPLE CONDITIONS
RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

COMMENTS

	SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY (DRY), API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	POROSITY: EFFECTIVE, ASTM D425M	TCEQ/TNRCC PROPERTIES PACKAGE	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318						NUMBER OF SAMPLES	COMMENTS
✓	TDCJ-B-16	11/28/06	1040	2.5'-4'															X	X							
?	TDCJ-B-16	11/28/06	1040	6"-2.5'																							
✓	TDCJ-B-11	11/28/06	1150	6"-2'															X	X							
✓	TDCJ-B-11	11/28/06	1150	3'-6'																							
✓	TDCJ-B-15	11/28/06	1242	6"-2.5'															X	X							
✓	TDCJ-B-15	11/28/06	1242	2.5'-3.5'																							
✓	TDCJ-B-13	11/28/06	1354	6"-2.5'															X	X							
✓	TDCJ-B-13	11/28/06	1354	2.5'-4'																							
/	TDCJ-B-14	11/28/06	1435	6"-2.5'																X							
/	TDCJ-B-14	11/28/06	1435	2.5'-5'																							

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Lisa McGarrah	Deborah D Steele		
COMPANY TETRA TECH EM INC	COMPANY PTS Labs	COMPANY	COMPANY
DATE 11/29/06 TIME 1035	DATE 11/29/06 TIME 1035	DATE TIME	DATE TIME

PTS GeoLabs, Inc. • 8100 Secura Way • Santa Fe Springs, CA 90670 • Phone (562) 907-3607 • Fax (562) 907-3610
PTS GeoLabs, Inc. • 4342 W. 12th St. • Houston, TX 77055 • Phone (713) 680-2291 • Fax (713) 680-0763

36988

PTS FILE# CHAIN OF CUSTODY RECORD

PAGE 2 OF 2

COMPANY
TETRA TECH EM INC DALLAS, TX 75201
ADDRESS CITY ZIP CODE
ERIC Johnstone eric.johnstone@ttemi.com
PROJECT MANAGER
TDCJ Ellis Unit 214.740.2001
PROJECT NAME PHONE NUMBER
S1286
PROJECT NUMBER FAX NUMBER
TDCJ Ellis Unit, Huntsville
SITE LOCATION
SAMPLER SIGNATURE

PO#

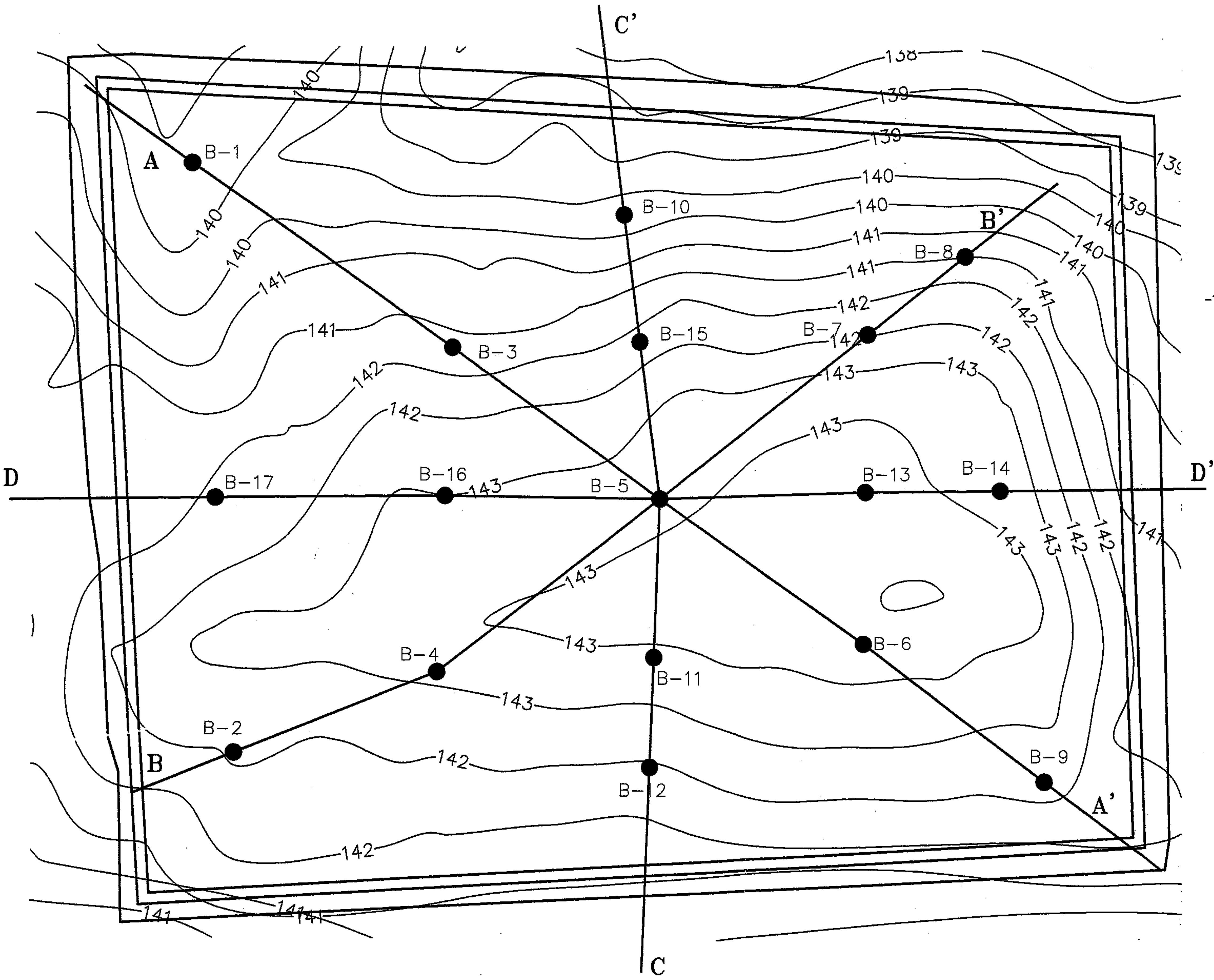
SPECIAL HANDLING
24 HOURS 5 DAYS
72 HOURS NORMAL
OTHER

SAMPLE CONDITIONS
RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY (DRY), API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	POROSITY: EFFECTIVE, ASTM D425M	TCEQ/TNRCC PROPERTIES PACKAGE	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	NUMBER OF SAMPLES	COMMENTS
TDCJ-B-12	11/28/06	1537	6"-2.5'																X		
TDCJ-B-12	11/28/06	1537	2.5'-3.5'																		
TDCJ-B-10	11/28/06	1604	6"-3.5'																X		
TDCJ-B-10	11/28/06	1604	3.5'-5'																		

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Lisa McGarrah	Deborah D Steele		
COMPANY TETRA TECH EM INC	COMPANY PTS Labs	COMPANY	COMPANY
DATE 11/29/06 TIME 1035	DATE 11/29/06 TIME 1035	DATE TIME	DATE TIME



25' 0 25' 50'
SCALE: 1" = 50'

LEGEND

B-1 ●	APPROXIMATE LOCATION OF SOIL BORING
-144-	1-FOOT CONTOUR AMSL
AMSL	ABOVE MEAN SEA LEVEL

NOTE:
DRAWING DERIVED FROM ENVIROENGINEERING, INC SHEET 3 – LANDFILL CLOSURE CONTOURS, UNDATED. BORING LOCATIONS B-1 THROUGH B-9 DERIVED FROM TEXAS DEPARTMENT OF CRIMINAL JUSTICE, FACILITIES ENGINEERING DRAWING, DATED JULY 6, 2004.

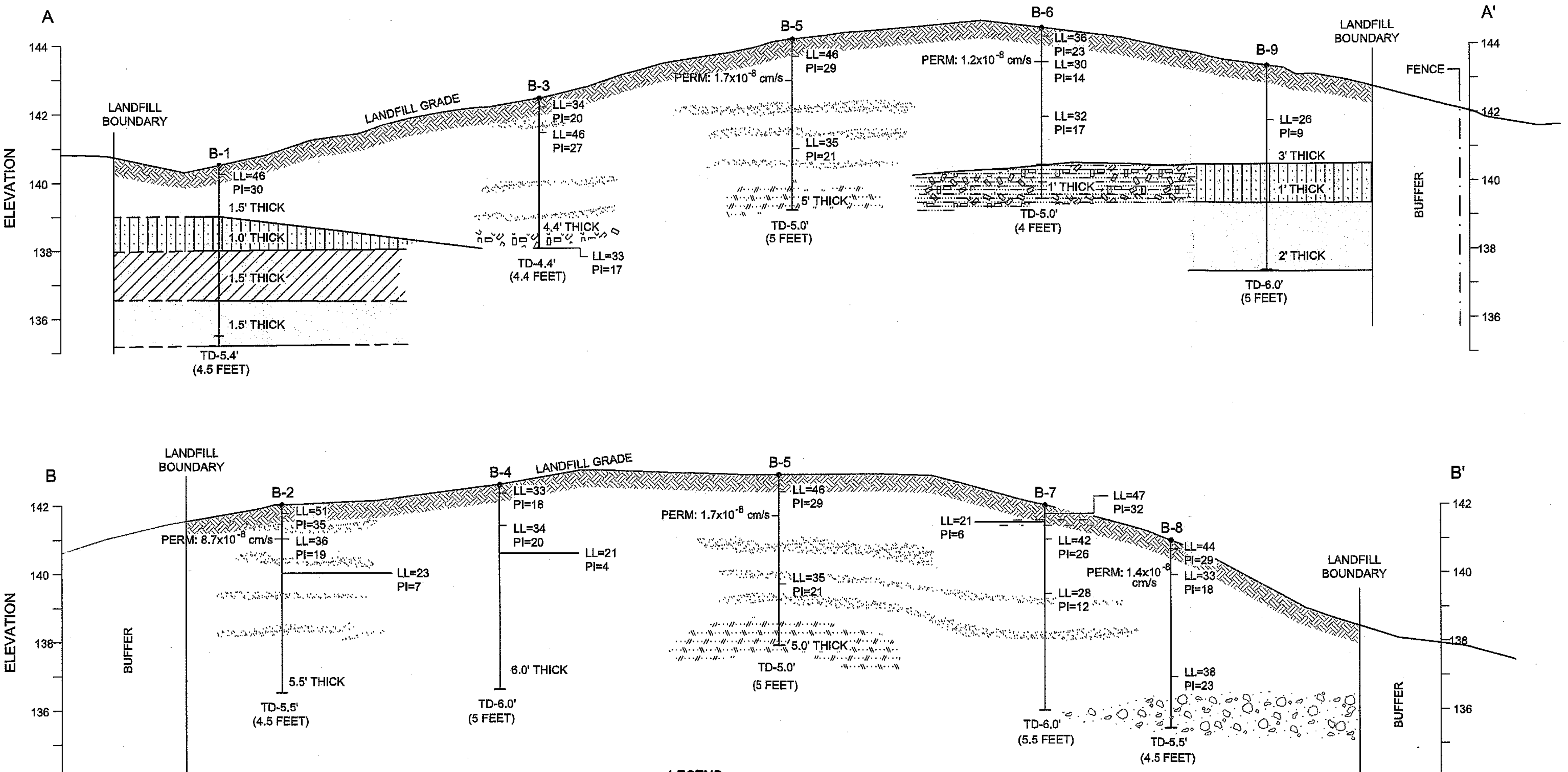
ELLIS UNIT
HUNTSVILLE, TEXAS

FIGURE V.G-II-1
CAP TOPOGRAPHY
AND BORING LOCATIONS

PREPARED FOR:
TDCJ

BY:
TETRA TECH EM INC

T:\CADD\S\S1286\ TDCJ_XS.dwg 01/19/2007 schwerj TX



LEGEND

▨	TOPSOIL / HUMUS
☐	COMPACTED CLAY LAYER (CLAY, SILTY CLAY, SANDY CLAY). (MODIFIERS APPROXIMATELY PLACED)
▧	CLAY
▤	SANDY SILT
░	SAND

▥	SILTY SAND
⁘	GRAVEL
░	ORGANICS
▩	DEBRIS
cm/s	CENTIMETERS PER SECOND
PERM	PERMEABILITY

(5 FEET)	THICKNESS OF CLAY-RICH SOILS
TD	TOTAL DEPTH
LL	LIQUID LIMITS
PI	PLASTICITY INDEX

NOTE:
RED FONT INDICATES ATTERBERG LIMITS WITH CL-ML CLASSIFICATION

25' 0 25' 50'
SCALE: 1"= 50'
HORIZONTAL SCALE

1.5' 0 1.5' 3'
SCALE: 1" = 3'
VERTICAL SCALE

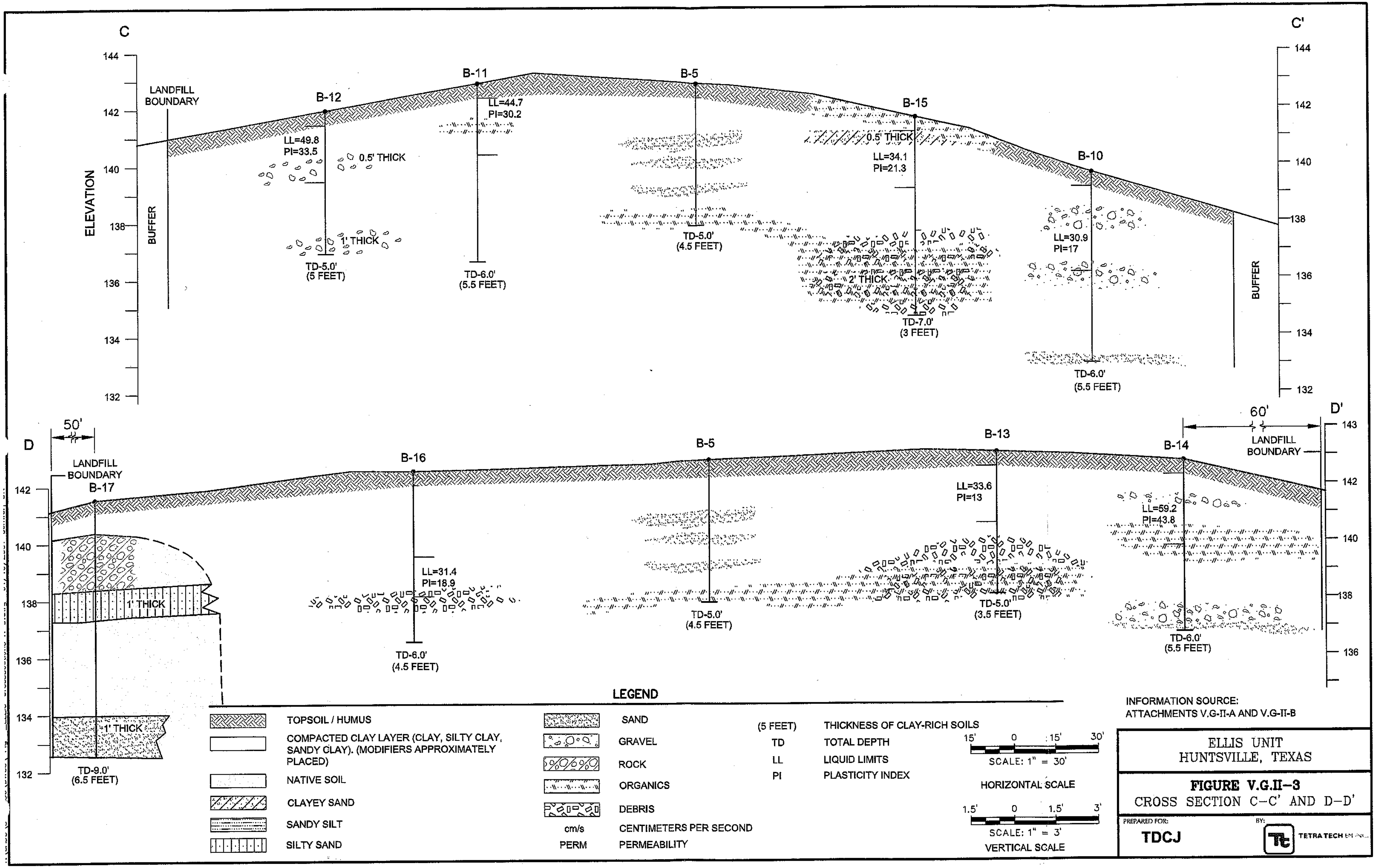
INFORMATION SOURCE:
ATTACHMENTS V.G-II-A AND V.G-II-B

ELLIS UNIT
HUNTSVILLE, TEXAS

FIGURE V.G.II–2
CROSS SECTION A–A' AND B–B'

PREPARED FOR:
TDCJ

BY:
TETRA TECH EM INC.



LEGEND

▨	TOPSOIL / HUMUS
☐	COMPACTED CLAY LAYER (CLAY, SILTY CLAY, SANDY CLAY). (MODIFIERS APPROXIMATELY PLACED)
☐	NATIVE SOIL
▨	CLAYEY SAND
▤	SANDY SILT
▥	SILTY SAND
▩	SAND
○	GRAVEL
○	ROCK
▤	ORGANICS
▩	DEBRIS
cm/s	CENTIMETERS PER SECOND
PERM	PERMEABILITY
(5 FEET)	THICKNESS OF CLAY-RICH SOILS
TD	TOTAL DEPTH
LL	LIQUID LIMITS
PI	PLASTICITY INDEX

INFORMATION SOURCE:
ATTACHMENTS V.G-II-A AND V.G-II-B

ELLIS UNIT
HUNTSVILLE, TEXAS

FIGURE V.G.II-3
CROSS SECTION C-C' AND D-D'

PREPARED FOR:
TDCJ

BY:
TETRA TECH EM INC.

APPENDIX VI.C

GROUNDWATER MONITORING PLAN

Appendix VI.C
Groundwater Monitoring Plan

Table of Contents

Tables

Figures

Drawings

None

Previously Submitted Reports

Appendices

Professional Geologist Certification

For the purposes of the Resource Conservation and Recovery Act (RCRA) Part B permit, the information contained in this Groundwater Monitoring Plan has been reviewed by a professional geologist. This is to certify that I have working knowledge of the information presented in the Groundwater Monitoring Plan and have found that Appendix VI.C Groundwater Monitoring Plan is consistent with accepted principles and practice.

I certify under penalty of law that this Groundwater Monitoring Plan was prepared under my direction or supervision and that all subsequent attachments were reviewed in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who performed investigation, evaluation, analysis, calculation, and planning during design, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that they are significant penalties for submitting false information including the possibility of fine or imprisonment for knowing violations.

MACKENZIE HIRT
GEOLOGY
15299

THE SEAL APPEARING ON THIS
DOCUMENT WAS AUTHORIZED BY
MACKENZIE HIRT, P.G. 15299
ON 07/02/2024

Signature: ______________________________ Date: 07/02/2024

Mackenzie Hirt, P.G.
Texas LPG No. 15299
AECOM Technical Services, Inc.
Firm Registration No. 50291
13640 Briarwick Drive, Suite 200
Austin, Texas 78729

1.0 Introduction

The Texas Department of Criminal Justice (TDCJ) owns and operates the Ellis I correctional unit located near the city of Huntsville in Walker County, Texas (See Figure 1-1). The Ellis I unit contains a former hazardous waste landfill (FLF) for which a Part A permit application was submitted to the Texas Department of Health (TDH) for permitting as a nonhazardous waste disposal facility for municipal type wastes. Before completion of the Part B permit application and final permitting of the landfill by TDH, the landfill ceased receipt of all wastes. However, a subsequent inspection of the landfill by Texas Water Commission (TWC) resulted in the TWC preparing a “Notice of Executive Director’s Preliminary Report and Petition for TWC Order Assessing Administrative Penalties and Requiring Certain Actions of Texas Department of Corrections – Ellis Unit I”, dated May 25, 1989. As a result, the TCDJ signed an Agreed Order (the Order) to prepare and submit a Part B permit application for the inactive landfill as if it were a known hazardous waste landfill, in accordance with the requirements of 30 Texas Administrative Code (TAC) 305.41 – 305.53. The Agreed Order is presented on CD as historical documentation and is attached to this document.

The Groundwater Monitoring Plan for the FLF is designed to provide a monitoring and detection system at the point of compliance that will be capable of determining whether migration of potential contaminants from the FLF is occurring into underlying groundwaters. This groundwater monitoring plan has been prepared in accordance with the requirements of 30 TAC 335.116(b) and describes:

- The number, location, and depth of all wells covered by the plan;
- Sample collection procedures;
- Sample preservation and shipment procedures;
- Chain-of-custody procedures;
- Analytical parameters and methods;
- Sampling frequency;
- Statistical procedures; and
- Quality assurance and control procedures.

1.1 Facility Description

The FLF was in service from 1976-1988 and, as such, is a pre-minimum technology requirements (MTR) landfill that was constructed using a “trench and fill” methodology. Trenches were excavated to depths of approximately 10 feet (ft) below ground surface (bgs), filled with waste material, and then backfilled with native soils at the FLF. No waste records are available; however, the TWC used 1994-1996 site documentation to develop a list of potential wastes, which are described in the Agreed Order. The only identified hazardous wastes were paint and paint-related materials; however, it was not confirmed if these potential wastes were disposed in the FLF. Other wastes that had potentially been disposed in the FLF included non-hazardous, Class 1 and 2 wastes such as empty containers/plastics, wood chips/sawdust, wastewater sludge, dirty rags, ash, roofing materials, scrap metal, plant refuse, filters and light bulbs.

In 1989, the FLF was capped with an approximately 4-ft thick clay cap and deed recorded as a municipal landfill. However, TWC assumed the cap consisted of uncompacted fill because no documentation was available and negotiated with TDCJ to submit a permit application for the inactive FLF as if it were a verified hazardous waste landfill. The permit application was submitted in 2001 and the permit issued in 2003. The permit indicates that the FLF is pending closure. A closure report has been submitted with the 2013 renewal application.

The FLF occupies 4 acres of land and operated from 1976 to 1989. The surrounding land usage is primarily for pasture and agricultural purposes. The FLF is located within 5,000 ft of the Trinity River, which is located to the northeast and southeast of the site. The site is within the Trinity River 100-year floodplain. Surface drainage from the FLF appears to enter Turkey Creek, which flows into Livingston Reservoir in Stream Segment 0803 of the Trinity River Basin, which is designated for contact recreation and high quality aquatic habitat.

1.2 Hydrogeological Conceptual Site Model

The site lies within the Interior Coastal Prairies subprovince of the Gulf Coastal Plains physiographic region of Texas. According to the Bureau of Economic Geology, the Interior Coastal Plains comprise alternating belts of resistant uncemented sands among weaker shales that erode into long, sandy ridges. In this part of East Texas, pine and hardwood forests and numerous permanent streams are present.

Within this context, and with respect to regional geology, there appears to be a geological relationship (formation scale) between the site and the Trinity River / Lake Livingston, although it appears highly unlikely that the FLF could potentially impact these surface waters. Numerous risk-limiting factors corroborate this position as outlined below:

Based on the Geologic Atlas of Texas, the site lies on or near the contact between the Quaternary Deweyville Formation (Qd) to the southwest and Quaternary Alluvium (Qal) to the northeast that flanks the Trinity River. Based on the NRCS Web Soil Survey, the site is within the floodplain of the river valley, and native soil is derived from clayey alluvium. Thus, the regional relationship is established.

However, at its nearest point, the Trinity River lies about 0.8 mile northeast of the site; just downstream, the river enters Lake Livingston. This distance alone significantly mitigates risks related to potential releases to the surface waters, as does the volume of the surface waters, which is many orders of magnitude greater than the volume of any potentially impacted groundwater within the site groundwater-bearing unit (GWBU).

Additionally, alluvial depositional environments are typically highly heterogeneous, limiting the likelihood that the thin (tens of feet, or less) lenses that tend to comprise shallow GWBUs are connected beyond a local scale. The degree of connectivity between the site GWBU and other local lenses has not specifically been investigated, but an investigation of this nature does not appear warranted for this site setting. A cross-section of the landfill that was originally included in the 2002 permit application has been included as Figure 1-2.

Furthermore, the depth to groundwater beneath the site is approximately 15 ft, whereas the landfilled trenches were reportedly excavated to a depth of only 10 ft. There is no evidence of groundwater mounding beneath the site that would otherwise indicate leachate recharge to the GWBU. In fact, the change in hydraulic head across the entire site is consistently less than 0.5 ft, producing a mild slope toward the east or southeast with a gradient on the order of 0.0007 ft/ft. Thus, there is a low potential for groundwater contaminant migration beneath the site.

Finally, potential site contaminants monitored in groundwater have consistently been non-detectable, or have occurred at relatively low levels signifying a similarly low overall risk regarding the potential for site groundwater to impact human health and/or the environment.

Therefore, the contributing factors of low level impacts at the source, low groundwater gradient, limited potential for hydrogeological connectivity, significant distance to the surface waters, and high volume of those waters, all combined, compel the notion that a release to surface waters under these conditions would be *de minimis*, if not implausible.

For additional information about regional and site-specific geology and hydrogeology, refer to the Geology Report and Facility Groundwater Report (attachments to the permit, sections VI.A and VI.B, respectively).

1.3 Purpose of the Plan

The purpose of this plan is to provide a groundwater detection monitoring program designed to collect information on groundwater quality conditions in the FLF. The collection of this information will enable a determination of whether a contaminant release from the FLF into the uppermost aquifer has occurred. This plan provides necessary background information about current groundwater quality conditions both upgradient and downgradient from the FLF. The plan also provides for a statistical method for evaluating whether a significant change in the upgradient and downgradient groundwater conditions has occurred as a result of groundwater contact with the FLF or FLF leachate. Should implementation of this plan indicate that groundwater in the area is being affected by the FLF, then a groundwater quality assessment plan would be implemented to evaluate the impact of the FLF on groundwater quality.

2.0 Monitoring Well System Description

The groundwater monitoring system consists of six wells (HWLP-1R through HWLP-6R) as shown in Figure 2-1. A current potentiometric surface map is also presented in this figure. All wells were installed in October and November 2016. The original wells were plugged and abandoned because they were compromised. These actions were completed as a result of the Class 2 modification approved in August 2016. Well P-1R was moved greater than 15 feet; all other wells were installed within 10 feet of the existing well locations. See Appendix E for a copy of the letter documenting this meeting. The screen length for HWLP-1R, HWLP-2R, and HWLP-5R is greater than 10 feet due to the thickness of the water table. This deviation was conveyed to TCEQ by phone and e-mail during well installation. Table 2-1 provides well construction details. Appendix F provides the new well construction diagrams as well as plugging and abandonment forms.

Wells were installed at the site and associated installation processes were in compliance with the TCEQ guidance document as provided below with the exceptions provided above. Figure 2-2 presents a sample well construction diagram.

1. Well drilling methods that minimize potential adverse effects on the quality of water samples withdrawn from the well and that minimize or eliminate the introduction of foreign fluids into the borehole must be utilized.

2. All wells shall be constructed such that the wells can be routinely sampled with a pump, bailer, or alternate sampling device.

3. Above the saturated zone the well casing may be two (2)-inch diameter or larger schedule 40 or 80 polyvinyl chloride (PVC) rigid pipe or stainless steel or polytetrafluoroethylene (PTFE or “teflon”) or an approved alternate material. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF-pw). Solvent cementing compounds shall not be used to bond joints and all connections shall be flush-threaded. In and below the saturated zone, the well casing shall be stainless steel or PTFE.

4. PVC or fiberglass reinforced resin may be used as an alternate well casing material in and below the saturated zone provided that it yields samples for groundwater quality analysis that are unaffected by the well casing material.

5. Any well that has deteriorated due to incompatibility of the casing material with the groundwater contaminants or due to any other factors must be replaced. Replacement of the damaged well shall be completed within ninety (90 days of the date of the inspection that identified the deterioration.

6. Well casings and screens will be steam cleaned prior to installation to remove all oils, greases, and waxes. Well casings and screens made of fluorocarbon resins shall be cleaned by detergent washing.

7. Screen length shall not exceed ten (10) feet within a given transmissive zone unless otherwise approved by the executive director. Screen lengths exceeding ten (10) feet may be installed in groundwater recovery or injection wells to optimize the groundwater remediation process in accordance with standard engineering practice. Screens will be placed based upon the recommendations of the PG and driller.

8. The intake portion of a well shall be designed and constructed so as to allow sufficient water flow into the well for sampling purposes and minimize the passage of formation materials into the well during pumping. The intake portion of a well shall consist of commercially manufactured stainless steel or PTFE screen or approved alternate material. The annular space between the screen and the borehole shall be filled with clean siliceous granular material (i.e., filter pack) that has a proper size gradation to provide mechanical retention of the formation sand and silt. The well screen slot size shall be compatible with the filter pack size as determined by sieve analysis data. The filter

pack should extend no more than three (3) feet above the well screen. A silt trap, no greater than one (1) foot in length, may be added to the bottom of the well screen to collect any silt that may enter the well. The bottom of the well casing shall be capped with PTFE or stainless steel or approved alternate material. Ground-water recovery and injection wells shall be designed in accordance with standard engineering practice to ensure adequate well production and to accommodate ancillary equipment. Silt traps exceeding one (1) foot may be utilized to accommodate ancillary equipment. Well heads shall be fitted with mechanical well seals, or equivalent, to prevent entry of surface water or debris.

9. A minimum of two (2) feet of pellet or granular bentonite shall immediately overlie the filter pack in the annular space between the well casing and borehole. Where the saturated zone extends above the filter pack, pellet or granular bentonite shall be used to seal the annulus. The bentonite shall be allowed to settle and hydrate for a sufficient amount of time prior to placement of grout in the annular space. Above the minimum two (2)-foot thick bentonite seal, the annular space shall be sealed with a cement/bentonite grout mixture. The grout shall be placed in the annular space by means of a tremie pipe or pressure grouting methods equivalent to tremie grouting standards.

   The cement/bentonite grout mixture or TCEQ approved alternative grout mixture shall fill the annular space to within two (2) feet of the surface. A suitable amount of time shall be allowed for settling to occur. The annular space shall be sealed with concrete, blending into a cement apron at the surface that extends at least two (2) feet from the outer edge of the monitor well for above-ground completions. Alternative annular-space seal material may be proposed with justification and must be approved by the executive director prior to installation.

   In cases where flush-to-ground completions are unavoidable, a protective structure such as a utility vault or meter box should be installed around the well casing and the concrete pad design should prevent infiltration of water into the vault. In addition, the following requirements must also be met 1) the well/cap juncture is watertight; 2) the bond between the cement surface seal and the protective structure is watertight; and 3) the protective structure with a steel lid or manhole cover has a rubber seal or gasket.

10. Water added as a drilling fluid to a well shall contain no bacteriological or chemical constituents that could interfere with the formation or with the chemical constituents being monitored. For groundwater recovery and injection wells, drilling fluids containing freshwater and treatment agents may be utilized in accordance with standard engineering practice to facilitate proper well installation. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

11. Upon completion of installation of a well, the well must be developed to remove any fluids used during well drilling and to remove fines from the formation to provide a particulate-free discharge to the extent achievable by accepted completion methods and by commercially available well screens. Development shall be accomplished by reversing flow direction, surging the well or by air lift procedures. No fluids other than formation water shall be added during development of a well unless the aquifer to be screened is a low-yielding water-bearing aquifer. In these cases, the water to be added should be chemically analyzed to evaluate its potential impact on in-situ water quality, and to assess the potential for formation damage. For recovery and injection wells, well development methods may be utilized in accordance with standard engineering practice to remove fines and maximize well efficiency and specific capacity. Addition of freshwater and treatment agents may be utilized during well development or re-development to remove drilling fluids, inorganic scale or bacterial slime. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

12. Each well shall be secured and/or designed to maintain the integrity of the well borehole and groundwater.

13. The above-ground portion of the well must be protected by bumper guards and/or metal outer casing protection .

14. Copies of drilling and construction details demonstrating compliance with the items of this provision shall be kept on site. This record shall include the following information:

    - name/number of well (well designation);
    - intended use of the well (sampling, recovery, etc.);
    - date/time of construction;
    - drilling method and drilling fluid used;
    - well location (+ 0.5 ft.);
    - bore hole diameter and well casing diameter;
    - well depth (+ 0.1 ft.);
    - drilling and lithologic logs;
    - depth to first saturated zone;
    - casing materials;
    - screen materials and design;
    - casing and screen joint type;
    - screen slot size/length;
    - filter pack material/size;
    - filter pack volume (how many bags, buckets, etc.);
    - filter pack placement method;
    - sealant materials;
    - sealant volume (how many bags, buckets, etc.);
    - sealant placement method;
    - surface seal design/construction;
    - well development procedure;
    - type of protective well cap;
    - ground surface elevation (+ 0.01 ft. MSL);
    - top of casing elevation (+ 0.01 ft. MSL); and,
    - detailed drawing of well (include dimensions).

15. Construction or plugging and abandonment of each well shall be completed in accordance with the requirements of this permit and 16 TAC Chapter 76.1000 through 76.1009 and must be certified to the TCEQ that such proper construction or plugging and abandonment has occurred within 60 days following installation or plugging and abandonment. Well completion logs for each newly installed or replaced well shall be included with the report within sixty (60) days from the date of completion of a multiple well installation project. The certification shall be prepared by a qualified geologist or geotechnical engineer. Each well certification shall be accompanied by a certification report, including an accurate log of the soil boring, which thoroughly describes and depicts the location, elevations, material specifications, construction details, and soil conditions encountered in the boring for the well. A copy of the certification and certification report shall be kept on-site, and a second copy shall be submitted to the Executive Director. Required certification shall be in the following form:

    This is to certify that installation (or abandonment and plugging) of the following facility components authorized or required by TCEQ Permit No. 50361 has been completed, and that construction (or plugging) of said components has been performed in accordance with and in compliance with the design and construction specifications of Permit No. 50361.

16. The well number must be clearly marked and maintained on each well at the site.

17. The elevation of the top of each well casing must be measured in feet above mean sea level to the nearest 0.01 foot and permanently mark the measuring point on the well. The Permittee shall compare old and new elevations from previously surveyed wells and determine a frequency of surveying not to exceed five (5) year intervals.

18. Wells may be replaced at any time TDCJ or the Executive Director determines the well integrity or materials of construction or well placement no longer enable the well to yield samples representative of groundwater quality.

19. Wells removed from service shall be plugged with a cement/bentonite grout mixture so as to prevent the preferential migration of fluids in the area of the borehole. Certification of each plugging shall be reported in accordance with Provision 14 of Attachment F to TCEQ Permit No. 50361. The plugging of wells shall be in accordance with 16 TAC Chapter 76.1000 through 76.1009 dealing with Well Drilling, Completion, Capping and Plugging.

20. A well’s screened interval shall be appropriately designed and installed to meet the well’s specific objective (i.e., either DNAPL, LNAPL, both, or other objective of the well). All wells designed to detect, monitor, or recover DNAPL must be drilled to intercept the bottom confining layer of the aquifer. The screened interval to detect DNAPL should extend from the top of the lower confining layer to above the portion of the aquifer saturated with DNAPL. The screened interval to detect DNAPL should extend from the top of the lower confining layer to above the portion of the aquifer saturated with DNAPL. The screen interval for all wells designed to detect, monitor, or recover LNAPL must extend high enough into the vadose zone to provide for fluctuations in the seasonal water table. In addition, the sand packs for the recovery or monitoring well’s screened interval shall be coarser than surrounding media to ensure the movement of NAPL to the well.

3.0 Detection Monitoring Program

Groundwater will be sampled at the FLF for the compounds presented in Table 3-1.

Inspection reports from 1987 indicate that paint chips, still grit, and ashes from the burned lacquer stripper were disposed of in the FLF. According to interviews conducted in 1994, 1995, and 1996, plant refuse, food waste, waste paints, empty containers, roofing material, light bulbs, oily sludges, wood chips and sawdust may also have been disposed of in the FLF. Additionally, based on manifests from that same time, metals scrap, paint booth arresters, waste microfilm, wastewater sludge, polymer, plastics, oil sand, blasting sand, roofing mastic, concrete curing compound, heavy metal contaminated sludge, contaminated rags, off-spec product, filter cartridges, waste paint related material, waste tar, latex paint, boiler treatment chemicals, seasonings, and fiberglass were generated by TDCJ and assumed by the TWC to have been disposed of in the FLF; however, there is no firm evidence/paperwork/interviews to support this claim. The historical documents were summarized in the previous permit application, which is appended to the report.

Historical interviews document that the paint and stripper waste was formed into briquettes and burned in trenches in the landfill before burial.

Based on these records and the Agreed Order issued by the TWC in 1989, a comprehensive list of parameters was developed and submitted in the original permit application; however, this list may have been overly conservative and likely does not accurately represent the list of chemicals of potential concern related to wastes that were actually disposed in the FLF. Since that time, TDCJ has sampled for metals, pesticides, herbicides, water quality parameters, radionuclides, phenols, total organic carbon (TOC), and total organic halogens (TOX). There was an exceedance of manganese in well P-3 in May 2012. Statistical tests indicate that this exceedance is within the expected concentrations for that well. Manganese has been detected in every sample collected at TDCJ. TOC, TOX, radionuclides, water quality parameters (anions), and metals (barium, cadmium, chromium, lead, and sodium) have been detected but not above the permit GW criteria. Pentachlorophenol was added as a permitted COC for the HWL in 2014 following a detection of PCP in former monitoring well P-3 in May 2012. According to the Groundwater Monitoring Plan (GMP), field personnel had sampled another site with known PCP contamination just prior to sampling monitoring wells at the TDCJ Ellis Unit HWL. It was suspected that the PCP detection was the result of cross-contamination as PCP-treated materials are not a known waste placed in the HWL unit (see Permit Table IV.B).

Analytical data, previously reported in the annual groundwater monitoring reports, is included as Table 3-2. Therefore, TDCJ proposes continuing monitoring RCRA metals (not including mercury), , TOC, and TOX, and removing pentachlorophenol as a permitted parameter as requested in the *TDCJ Ellis Unit Hazardous waste Landfill 2024 Background Evaluation and Request to Update Concentration Limits* (Memo) (AECOM, May 2024). As paint waste and lacquer stripper were the only documented hazardous wastes disposed of in the FLF, these parameters are appropriate to detect possible excursions of the groundwater standards and thus provide protection of human health and the environment. Additionally, based on relative stability of the concentration trends for each COC, the groundwater sampling frequency is recommended to be adjusted from quarterly to annually. The Memo providing rational for the sampling frequency update is included as Appendix G to the GMP.

The parameters included in the 2014 TDCJ permit were reviewed with respect to §335.164 (1)(A) –(D) to refine the list of parameters for future monitoring. In 1994, five wells (two upgradient [P-1 and P-5] and three downgradient) were installed and analyzed for Appendix IX analytes listed in 40 CFR Part 264 including metals (antimony, barium, beryllium, cadmium, chromium, cobalt, copper, nickel, silver, vanadium, and zinc) by ICP (SW-846 6010); mercury by SW-846 7470; tin, arsenic, lead, selenium, and thallium by atomic absorption (SW-846 7870, 7060, 7421, 7740, and 7841, respectively); semivolatiles by SW-846 8270; volatiles by SW-846 8240; herbicides by SW-846 8150; pesticides by SW-846 8080; organophosphorus pesticides by SW-846 8140; and dioxins and furans by SW-846 8280. Quality control included a sample duplicate and an MS/MSD pair. The table below presents the detected compounds from these historical wells.

Parameter	P-1 (mg/L)	P-2 (mg/L)	P-3 (mg/L)	P-3 Dup (mg/L)	P-4 (mg/L)	P-5 (mg/L)
Arsenic	ND (0.01)	ND (0.01)	ND (0.01)	0.02	0.01	0.01
Barium	0.15	0.19	0.23	0.28	0.34	0.21
Chromium	ND (0.020)	ND (0.020)	ND (0.020)	0.022	ND (0.020)	ND (0.020)
Lead	ND (0.005)	ND (0.005)	ND (0.005)	0.0094	ND (0.005)	0.0059
Nickel	ND (0.025)	ND (0.025)	ND (0.025)	0.026	ND (0.025)	ND (0.025)
Vanadium	ND (0.025)	ND (0.025)	ND (0.025)	0.038	ND (0.025)	ND (0.025)
Zinc	ND (0.040)	ND (0.040)	0.078	0.092	0.044	0.051
Trichlorofluoromethane	ND (0.005)	ND (0.005)	0.005	ND (0.005)	ND (0.005)	ND (0.005)
2,4,5-TP (Silvex)	ND (0.00048)	0.0049	ND (0.00048)	ND (0.00048)	ND (0.00048)	ND (0.00048)

ND – Not detected

HW-50361 was issued in 2003 and included analysis of metals (arsenic, barium, cadmium, chromium, lead, manganese, selenium, silver, sodium, and mercury), herbicides, pesticides, phenol, TOC, TOX, anions (chloride, fluoride, nitrate, and sulfate), coliform, and radioactive components (gross alpha, gross beta, and radium 226). The monitoring system at the TDCJ Ellis Unit HWL is currently comprised of six monitoring wells: P-1R, P-2R, P-3R, P-4R, P-5R, and P-6R. The current baseline data set for these wells includes data collected between 2016 and 2021. In 2022 and 2023, eight additional rounds of quarterly data were collected. These data were evaluated and considered to be representative of background.

30 TAC §335.164(1) states:

> An owner or operator required to establish a detection monitoring program must, at a minimum, discharge the following responsibilities:
>
> (1) The owner or operator must monitor for indicator parameters (e.g., specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in groundwater. The commission will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:
>
> *TDCJ agrees to monitoring specific conductance, TOC, and TOX and provides the following rationale for the reduction in parameters to be monitored at the facility.*
>
> (A) the types, quantities, and concentrations of constituents in wastes managed at the regulated unit;
>
> *Because the FLF was pre-MTR, no records of disposed wastes are available. It is known what type of waste was produced by TDCJ but not where it was disposed. The only known records of hazardous waste disposal in the FLF were paint and paint-related materials; the FLF was primarily used to dispose of solid waste such as paper. Other wastes that had been disposed included non-hazardous Class1 and 2 wastes such as empty containers/plastics, wood chips/sawdust, wastewater sludge, dirty rags, ash, roofing materials, scrap metal, plant refuse, filters, and light bulbs.*

- *It should be noted that although pesticides and herbicides are used in the agricultural units associated with TDCJ, practice has always been to use all of the pesticide or herbicide and then rinse the drums into the applicators. No pesticides or herbicides would have been disposed of in the landfill. An interview with an employee who worked at the landfill at the time that it was active is presented in Appendix A.*

- *Anions are expected to be present in groundwater.*

- *Phenol was never detected in the groundwater monitoring data; however, pentachlorophenol was analyzed for in several sampling rounds and has been detected in one sample in May 2012 and four (including both upgradient wells) in January 2013. Pentachlorophenol has never been detected in the same well twice in a row. Pentachlorophenol is recommended for removal as a permitted parameter with this 2024 permit renewal.*

- *TDCJ is a working farm which raises both cattle and swine. Coliform can be expected to be detected in the groundwater and has been detected in both background wells as well as the down-gradient wells. Coliform is not a good indicator parameter for releases from the landfill.*

- *Radiochemical parameters such as gross alpha, gross beta, and radium are found in the environment. Their occurrence in groundwater is natural. TDCJ is unaware of any items disposed of in the landfill that could contribute to radioactivity. Gross alpha counting takes approximately 30 days and is generally reported with an error measurement. Certain rock types have naturally occurring trace amounts of "mildly radioactive" elements which may accumulate in drinking water. In the gross alpha method, the solids concentration is a limiting factor as gross alpha particles are stopped by solids. The permitted concentration for gross alpha is 10.5 mg/L. However, gross alpha is measured in pCi/L. There is no conversion factor from pCi to mg. The EPA MCL for gross alpha is 15 pCi/L. This concentration was exceeded in well MW-P3 in two samples collected during one quarter. The MCL has not been exceeded since that time. Gross alpha was detected in all wells including the two up-gradient wells. The concentrations are similar in all the wells (within the error established for the measurements) and is therefore, likely, naturally occurring.*

- *The metals that have been detected historically have been retained on the list except for sodium which is not hazardous and would be expected to be found in groundwater.*

(B) the mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area;

Groundwater gradient across the site is <0.5 ft. Therefore, the potential for mobility of the waste constituents is limited.

(C) the detectability of indicator parameters, waste constituents, and reaction products in groundwater; and

Metals, TOC, and TOX are easily detected in groundwater and would be expected to indicate a release.

(D) the concentrations or values and coefficients of variation of adopted monitoring parameters or constituents in the groundwater background.

The only metals routinely detected in the groundwater are arsenic, barium, lead, manganese. These metals are ubiquitous in the environment, and its occurrence in groundwater is commonly natural and related to soil or aquifer mineralogy. Changes in groundwater redox conditions that may occur naturally or as a result of anthropogenic activity may impact manganese solubility and concentration. Manganese was present in the historical up-gradient wells MW-P1 and MW-P5 and has not been detected above its respective concentration limits in any of the replacement wells. Manganese is also present in the farmland half a mile west of the landfill (see Appendix B). Evaluation of manganese was conducted by graphing the concentration over time and comparing the result to corresponding monthly rainfall totals and field measurements of dissolved oxygen (DO). DO was also compared with oxidation-reduction potential (ORP) field measurements to assist with the evaluation of redox environment, which is known to impact manganese solubility. Manganese solubility increases under reducing conditions. The graphs are provided in Appendix C. The wells that appear to have elevated manganese concentrations compared to the rest of the site are historical downgradient wells (P-2 and P-3) and upgradient well P-5. Increased manganese concentrations were present in historical Well-P3. Manganese concentration observed at P-3 may be explained by manganese solubility and or biogeochemistry. Manganese dissolution may be mediated by microbes in anaerobic environments. Upon reentering oxygenated environments, soluble manganese is removed from the water as it readily precipitates as oxide or hydroxide minerals. Because manganese is present in the upgradient and downgradient wells, and in the soil in the farmland west of the landfill it is naturally occurring and is not due to a release from the landfill. Therefore, the calculated UPL will be used to determine if there has been a release.

The objectives of the groundwater monitoring plan are to ensure that:

- Field methods for detection monitoring are consistent with the requirements of permit HW-50361 and the TCEQ Quality Assurance Project Plan (QAPP);
- Field methods for compliance and corrective action monitoring are consistent with Texas Risk Reduction Program (TRRP) requirements;
- Consistent field methods are used for monitoring activities;
- Analyses are conducted consistent with the requirements of permit HW-50361, the TCEQ QAPP, and the TRRP; and
- Data generated during field and laboratory activities are usable for their intended purpose.

3.1 Well Inspection

Maintenance inspections are conducted during routine monitoring events and inspection results are noted in the field sampling log. Maintenance or repair needs identified during the inspections will be addressed as soon as practicable. Maintenance inspections evaluate:

- Legibility of well identification numbers;
- Presence of visible damage to the above ground well completion (i.e., outer/inner casing, concrete surface seal, padlock, and guard posts);

- Security of cap and monitoring well; and
- Silt accumulation in well screen interval based on total depth measurements.

Any significant silt build-up (greater than 20% of the well screen) will be removed by well redevelopment. Well maintenance activities are documented in the field log.

3.2 Groundwater Measurements

The static groundwater elevation at each monitoring well will be measured and recorded during each sampling event prior to well purging/sample collection. Measurements will be consistently recorded from the notch or marked location on the well casing; in the absence of a notch or marked location, measurements will be made from the north side of the casing. Meter readings are made to 0.01 foot accuracy. The water level indicator will be cleaned using a mild detergent and rinsed with deionized water between wells.

3.3 Well Purging

Well purging is required to ensure that the water samples collected are representative of the groundwater and not stagnant casing water within the well. Where practicable, purging and sampling will be accomplished using low-flow groundwater sampling techniques. Well purging will be performed with portable, non-dedicated electrical submersible or peristaltic pumps that are easily adjustable and reliable at low flow rates. If well yield is not sufficient to meet low-stress sampling protocols then the field geologist will use professional judgment to determine the appropriate sampling technique required to produce representative samples. Sampling techniques will be in accordance with U.S. EPA guidance and TCEQ Standard Operating Procedures.

Low-flow purging is conducted using a pump, tubing, and in-line flow-through cell capable of monitoring stabilization parameters in accordance with the following procedures:

1. The portable (non-dedicated) pumps and in-line flow-through cell are decontaminated prior to use at each well.
2. If the well does not have a dedicated pump and tubing, then tubing is replaced prior to use at each well. Dedicated tubing is marked or fixed in position adjacent to the top of casing to allow for accurate placement over multiple sample events.
3. The inlet of the pump is carefully lowered to a position approximately at the mid-point of the screened interval of each well. Care is taken to minimize re-suspension of solids at the bottom of the well.
4. The pump flow rate is adjusted to remove groundwater at a recommended pumping rate of 0.1 to 0.5 liter per minute, or at a sufficiently low rate to ensure that drawdown in the well is less than 0.1 meter (0.33 ft) relative to the static water level.
5. In-line flow-through cells and water quality meters are utilized to monitor, at a minimum, pH, conductivity, and turbidity or dissolved oxygen (DO). Water quality measurements are taken every 3 to 5 minutes.
6. Purging is complete after parameters have stabilized for three successive readings. These three consecutive readings should be within the following ranges:
    - ±0.1 unit for pH;
    - ±5% for conductivity; and
    - ±10% for DO; or

- ±10% for turbidity.

7. Stabilized readings indicate that sufficient purging has been completed and the sample should be representative of groundwater from the formation. Values for the above parameters are recorded in the field log.

8. Purge water is contained in labeled and sealed Department of Transportation (DOT)-approved containers until proper disposal can be coordinated.

9. If unforeseen/unavoidable complications arise regarding this low-flow purging procedure due to field conditions, then troubleshooting of equipment or modifications to this methodology may be implemented in general accordance with U.S. EPA Region I Guidance: *Low Stress (Low Flow) Purging and Sampling Procedure For The Collection Of Groundwater Samples From Monitoring Wells*, revised January 19, 2010.

3.4 Sample Collection Procedures

If low-flow purging is not used, the well will be allowed to recharge after purging to provide a sufficient volume of groundwater for the samples. One groundwater sample will be collected from each well using a pump with dedicated tubing for low flow conditions for each well. Groundwater samples will be analyzed in the field for pH, conductivity, and turbidity or DO. One well will be sampled in duplicate every other quarter.

Groundwater samples will be collected from each of the six wells in Table 2-1 and will be analyzed for the parameters identified in the RCRA Permit B Table B.VI.B.3.c. Sample containers and applicable preservatives are supplied by the analytical laboratory. Table 3-3 summarizes the containers, preservatives, and holding times for the parameters. Samples will be collected immediately after purging.

Groundwater samples will be retrieved from the wells using a water pump with dedicated tubing. The hose should not be placed inside the containers or allowed to contact the sample containers. The sample will be emptied directly into the approved sample containers pre-filled with designated preservatives. Semivolatiles, TOC, and TOX will be collected first and RCRA metals last.

3.5 Sample Handling

Sample labels must be checked for completeness and legibility. Sample storage temperature should be maintained at <6° C from the time the sample is collected to the time it is delivered to the analytical laboratory. Ice should be placed in sealed plastic bags to contain the melt water. After sample collection is completed, the samples should be securely packed in the shipment coolers.

3.6 Sample Documentation

The paperwork required for sampling documentation and informational purposes includes the field data sheets, chain of custody (C-O-C) forms, sample labels, custody seals, and split sample acknowledgment/receipt forms as described below.

3.6.1 Field Logs

Field logs are a written historical record of pertinent field-generated data and information. The field data logs are kept in a bound manual and only used for this project.

3.6.2 Chain-of-Custody Forms

Documentation of possession of analytical samples is required on the C-O-C form from the time of sample collection through sample delivery and check-in at the analytical laboratory. The C-O-C records will accompany each set of samples/coolers and will document each time samples change possession. A typical C-O-C form is shown on Figure 3-1. The C-O-C will also provide the details included on the sample bottles and any additional laboratory analysis and reporting requirements. At a minimum, the C-O-C will contain:

- Site identification;
- Sample identification (including sampling point);
- Date and time of sample collection;
- Sample type (e.g., groundwater, surface water, sediment);
- Analytical parameters;
- Number of containers;
- Signature of sample collector(s);
- Signature(s) of person(s) involved in chain of possession; and
- Inclusive dates and time of possession.

3.6.3 Sample Container Labels

Sample containers will be supplied by the analytical laboratory for the selected analytical methods. The sample container label is one of the first links in the paper chain that tracks the sample through the sampling and analytical process. A typical sample container label is shown in Figure 3-2. At a minimum, the label information will contain:

- Sample identification;
- Name or initials of collection party;
- Date and time of collection;
- Site and project identification (if space permits);
- Preservation technique; and
- Parameters for analysis.

3.6.4 Sample Shipment

Sample coolers generally require overnight shipment to the analytical laboratory. Special cooler handling measures must be undertaken if either extremely high or low temperatures will be encountered during transit to the contact laboratory. Weekend delivery service requires laboratory personnel notification of Saturday delivery service in advance. If ice is used, the ice will be double bagged in zip-lock style bags.

3.6.5 Sampling Frequency

The purpose of this monitoring program is to determine if contaminants are exceeding the PCL at the POC wells. Based on the recommendations from the Memo (Appendix G), it is recommended that the sampling frequency be updated from quarterly to annually based on the relative stability of the concentration trends for each COC. Should a proven SSI or exceedance above the PCL occur, the well will be sampled for the RCRA Appendix IX compounds as well as fluoride, nitrate, radium, gross alpha, gross beta, chloride, sodium, and sulfate as directed by the permit.

3.7 Analytical Procedures

The analytical methods and practical quantitation limits for the parameters monitored are specified in Table VI.B.3.c. Parameters which have historically been non-detect in all wells are presented initially and individual wells with detected concentrations are presented on the next pages. All methods used will be the latest version of SW-846 which has been approved by the Texas Laboratory Accreditation Program for that laboratory unless a method for that parameter is not available, in which case, another suitable method from EPA guidance or American Society of Testing and Materials will be selected.

3.8 Quality Assurance and Quality Control

The data generated by the monitoring program will be subjected to a series of checks and reviews to ensure that the data is representative of conditions at the site. This will include both field and laboratory quality assurance and quality control (QA/QC) procedures. All analytical results submitted to the TCEQ shall be in a manner consistent with the latest version of the "Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the RCRA and Underground Injection Control (TCEQ QAPP)".

3.8.1 Field QA/QC

Field instrument calibration will be checked daily and documented. Duplicate samples for laboratory analysis will be collected every other quarter. In the event that dedicated equipment is not used, a field blank will be collected for laboratory analysis by pouring de-ionized water over decontaminated equipment to demonstrate that the sampling equipment is clean. One field blank per sampling event will be collected as necessary.

3.8.2 Laboratory QA/QC

Laboratories used in this program will be certified under NELAP by the TCEQ. The laboratory will follow NELAP procedures.

3.9 Validation

Laboratory reports will be validated according to TCEQ Regulatory Guidance, Review and Reporting of COC Concentration Data under TRRP, RG-366/TRRP 13, May 2010.

3.10 Statistical Evaluation

Statistical methods to be used to evaluate background data are described in the U.S. EPA guidance document, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance* (USEPA 2009). The overall approach is to statistically derive a background threshold value (BTV) to be used as a concentration limit for each well-constituent listed in in Table VI.B.3.c based on a statistical evaluation of a given baseline data set.

The current baseline data set is comprised of background groundwater monitoring data obtained from the monitoring well system (P-1 through P-6) since installation in 2016 through 2023. Background groundwater data was obtained through routine sampling and the baseline data set includes a minimum of eight (8) samples for each monitoring well. Future groundwater monitoring results will be evaluated using the intrawell method of comparing monitoring results at each sampling location against their specific concentration limit. Any monitoring result(s) exceeding its respective concentration limit may be considered to be an indication of potential contamination or release from the site. In accordance with 30 TAC §335.163(9)(F), with TCEQ's approval, the baseline data set will be updated and concentration limits will be re-calculated, no less than every two years, with groundwater monitoring results demonstrated to be representative of background groundwater quality to correct for seasonal and spatial variability as well as temporal correlation in the data.

3.10.1 Verification Sampling

Once statistical tests have been developed, verification sampling may be used to achieve an appropriate balance of false positive and false negative rates. Verification is necessary to avoid a high false positive rate arising from variations in sampling and analytical procedures. Verification does not appreciably increase the false negative rate, however, because the presence of a release will result in consistently detectable concentrations above BTV in the successive samples. Thus, verification resampling achieves an appropriate balance of false positive and false negative rates, which is the chief objective of the requirements at 30 TAC Section 335.163-164. Verification is an integral part of these tests. It is not legitimate to use any of the tests in this permit without verification as described herein.

As described above, the statistical UPL testing to be applied for determination of SSI is based on the “1-of-3” retesting strategy. If the original monitoring sample is below the applicable background UPL, the monitoring location is considered to be no different than the background/baseline. If the original sample exceeds the UPL, two resamples will be collected (at least two weeks apart from each other) and compared against the same UPL. If one or both of the two resamples are below the UPL, the monitoring location is again considered to be no different than the background/baseline. If both resamples exceed the UPL, the monitoring location is considered to have an SSI above baseline.

The first verification sample will be obtained, to the extent practicable, within two months of the initial sampling event. If a second verification sample is needed, then it will be obtained within three months of the initial sampling event. All verification results will be reported.

3.10.2 Statistically Significant Increases

Once statistical background has been determined, if evidence of an SSI is identified and confirmed by verification samples, TDCJ will collect samples from the well that exhibited the SSI from background and analyze them for the Appendix IX compounds.

References

Gilbert, Richard O. *Statistical Methods for Environmental Pollution Monitoring.* New York: Van Nostrand Reinhold Company. 1987.

USEPA. 2006. *Data Quality Assessment: Statistical Methods for Practitioners (EPA QA/G-9S).* Office of Environmental Information, U.S. Environmental Protection Agency, Report No. EPA/240/B-06/003.

USEPA. 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance.* Office of Resource Conservation and Recovery, U.S. Environmental Protection Agency, Report No. EPA 530-R-09-007.

3.11 Groundwater Gradient and Direction Determination

Groundwater gradient and flow direction in the uppermost aquifer will be determined for each sampling event. Groundwater flow direction will be determined by plotting groundwater elevations and contouring them to create a potentiometric surface map of the uppermost aquifer. The groundwater flow path and direction will be inferred as perpendicular to the groundwater contours, and the gradient will be calculated as the change in head along the groundwater flow path. For each sampling event, a groundwater elevation map will be constructed.

3.12 Reporting

An annual report will be prepared which includes:

- A statement whether an SSI has occurred in any well over the last year;
- The results of all monitoring, testing, and analytical work;
- The groundwater flow direction and gradient;
- Groundwater elevation contour map;
- Recommendations for any changes; and
- Any other changes requested by the Executive Director.

3.13 Recordkeeping

Records will be maintained by the Environmental Branch of the Facilities Division in electronic or hardcopy. The Environmental Branch is located approximately 18 miles outside the prison facility. This separation is necessary for security purposes.

Table 2-1. Monitor Well Construction Details

Waste Management Unit/Area Name[1]	Hazardous Waste Landfill (HWL-)					
Well Number(s):	P-1R	P-2R	P-3R	P-4R	P-5R	P-6R
Hydrogeologic Unit Monitored	Uppermost Alluvium	Uppermost Alluvium	Uppermost Alluvium	Uppermost Alluvium	Uppermost Alluvium	Uppermost Alluvium
Type (e.g., point of compliance, background, observation, etc.)	BG	POC	POC	POC	BG	POC
Up or Down Gradient	Up	Down	Down	Down	Up	Down
Casing Diameter and Material	2” PVC	2” PVC	2” PVC	2” PVC	2” PVC	2” PVC
Screen Diameter and Material	2” PVC	2” PVC	2” PVC	2” PVC	2” PVC	2” PVC
Screen Slot Size (in.)	0.01	0.01	0.01	0.01	0.01	0.01
Top of Casing Elevation (ft, MSL)	143.50	142.57	138.09	138.16	144.37	137.63
Grade or Surface Elevation (ft, MSL)	140.80	139.93	135.67	135.29	141.78	135.02
Well Depth (ft)	29.49	32.92	20.44	25.45	35.46	23.26
Screen Interval, From (ft) To (ft)	12 27	15 30	8 18	12.8 22.8	17 32	10 20
Facility Coordinates (e.g., lat/long or company coordinates)	30° 53’ 58.7” N 095° 25’ 44” W	30° 53’ 58.01” N 095° 25’ 37.86” W	30° 53’ 59.22” N 095° 25’ 35.61” W	30° 54’ 3.76” N 095° 25’ 40.19” W	30° 54’ 03” N 095° 25’ 43.92” W	30° 54’ 00.99” N 095° 25’ 37.26” W

[1] From Tables in Section V. Measured in November 2011.

BG – background.
ft – feet.
in – inches.
MSL – mean sea level.
POC – point of compliance.
PVC – polyvinyl chloride.

Table 3-2. Historical Data

Analyte	Method	Units	Concentration Limit	MW-P1			MW-P2			MW-P3		
				MW-P1	MW-P1	MW-P1	MW-P2	MW-P2	MW-P2	MW-P3	MW-P3	MW-P3
				4/5/2007	8/15/2007	11/28/2007	4/5/2007	8/15/2007	11/28/2007	4/5/2007	8/15/2007	11/28/2007
Chloride	E300.0	mg/L	619	21.0	70.0	30.5	145	188	83.7	169	304	167
Fluoride	E300.0	mg/L	28.6	0.0070 U	0.12	0.16	0.0070 U	0.082 B	0.13	0.0070 U	0.13	0.14
Nitrate-N	E353.2	mg/L	26.6	1.3	1.8	0.15 U	0.49	0.20	0.15 U	0.10	0.70	0.10 U
Phenols	E420.3	mg/L	0.24	0.025 U	0.0097 B	0.065 B	0.025 U	0.011 B	0.040 B	0.025 U	0.014 B	0.037 B
Sulfate	E300.0	mg/L	266	28	19.0	16.5	42	37.0	8.2 B	140	157	11.9
Total Organic Carbon	E415.1	mg/L	NS	3.0	0.70 B	1.6	2.0	1.0	2.1	4.0	4.0	5.2
Total Coliform	SM9222D	cfu/100mL	148.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	SW6010B	mg/L	0.05	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U
Barium	SW6010B	mg/L	1.0	0.115 B	0.130 B	0.152 B	0.196 B	0.166 B	0.196 B	0.179 B	0.231	0.226
Cadmium	SW6010B	mg/L	0.06	0.00024 U	0.0018 U	0.0018 U	0.00024 U	0.0018 U	0.0018 U	0.00024 U	0.0018 U	0.0018 U
Chromium	SW6010B	mg/L	0.05	0.0155	0.0015 U	0.0015 U	0.0162	0.0015 U	0.0015 U	0.0145	0.0015 U	0.0015 U
Lead	SW6010B	mg/L	0.10	0.0021 B	0.0028 U	0.0028 U	0.0023 B	0.0028 U	0.0034	0.0038	0.0047	0.0040
Manganese	SW6010B	mg/L	6.1	0.129	0.309	0.337	1.68	1.77	1.07	3.45	5.19	3.85
Selenium	SW6010B	mg/L	0.13	0.0032 U	0.0023 U	0.0023 U	0.0032 U	0.0023 U	0.0023 U	0.0032 U	0.0023 U	0.0023 U
Silver	SW6010B	mg/L	0.05	0.00050 U	0.0011 U	0.0011 U	0.00050 U	0.0011 U	0.0011 U	0.00050 U	0.0011 U	0.0011 U
Sodium	SW6010B	mg/L	240	34.9	36.2	33.1	77.0	86.9	74.9	113	158	156
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000020 U	0.000019 U	0.000019 U	0.000020 U	0.000019 U	0.000019 U	0.000020 U	0.000019 U	0.000019 U
Lindane	SW8081A	mg/L	0.004	0.0000074 U	0.0000070 U	0.0000070 U	0.0000074 U	0.0000070 U	0.0000070 U	0.0000074 U	0.0000070 U	0.0000070 U
Methoxychlor	SW8081A	mg/L	0.10	0.000082 U	0.000078 U	0.000078 U	0.000082 U	0.000078 U	0.000078 U	0.000082 U	0.000078 U	0.000078 U
Toxaphene	SW8081A	mg/L	0.005	0.00021 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00021 U	0.00020 U	0.00020 U
2,4-D	SW8151A	mg/L	0.10	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.031 U	0.073 B	0.031 U	0.039 B	0.031 U	0.031 U	0.059 B		0.033 B
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross Beta	SM900.0	pCi/L	18.8 mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P4			MW-P5			MW-P6		
				MW-P4	MW-P4	MW-P4	MW-P5	MW-P5	MW-P5	MW-P6	MW-P6	MW-P6
				4/5/2007	8/15/2007	11/28/2007	4/5/2007	8/15/2007	11/28/2007	4/5/2007	8/15/2007	11/28/2007
Chloride	E300.0	mg/L	619	430	201	104	32.0	7.9	49.1	160	193	142
Fluoride	E300.0	mg/L	28.6	0.0070 U	0.079 B	0.13	0.0070 U	0.082 B	0.12	0.0070 U	0.16	0.24
Nitrate-N	E353.2	mg/L	26.6	0.19	0.10 U	0.31	0.29	0.40	0.15 U	0.29	0.70	0.50
Phenols	E420.3	mg/L	0.24	0.025 U	0.010 U	0.047 B	0.025 U	0.015 B	0.041 B	0.025 U	0.017 B	0.029 B
Sulfate	E300.0	mg/L	266	340	188	4.5 B	32	23.0	7.8 B	150	158	8.2 B
Total Organic Carbon	E415.1	mg/L	NS	5.0	2.0	3.2	1.0	0.80 B	1.8	3.0	3.0	4.8
Total Coliform	SM9222D	cfu/100mL	148.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	SW6010B	mg/L	0.05	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0042 B	0.0027 U	0.0027 U	0.0027 U
Barium	SW6010B	mg/L	1.0	0.138 B	0.070 B	0.105 B	0.0834 B	0.0691 B	0.109 B	0.221	0.291	0.254
Cadmium	SW6010B	mg/L	0.06	0.00024 U	0.00018 U	0.00018 U	0.00024 U	0.0018 U	0.0018 U	0.00024 U	0.0018 U	0.0018 U
Chromium	SW6010B	mg/L	0.05	0.0171	0.0015 U	0.0015 U	0.0134	0.0015 U	0.0015 U	0.0257	0.0015 U	0.0015 U
Lead	SW6010B	mg/L	0.10	0.0062	0.0041	0.0028 U	0.0020 B	0.0038	0.0028 U	0.00390	0.0044	0.0032
Manganese	SW6010B	mg/L	6.1	0.973	1.46	0.797	0.563	0.561	0.873	0.838	0.674	0.595
Selenium	SW6010B	mg/L	0.13	0.0032 U	0.0023 U	0.0023 U	0.0032 U	0.0023 U	0.0023 U	0.0032 U	0.0023 U	0.0023 U
Silver	SW6010B	mg/L	0.05	0.00050 U	0.0011 U	0.0011 U	0.00050 U	0.0011 U	0.0011 U	0.00050 U	0.0011 U	0.0011 U
Sodium	SW6010B	mg/L	240	243	117	90.6	29.0	22.3	46.8	118	98.2	104
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000020 U	0.000019 U	0.000019 U	0.000020 U	0.000019 U	0.000019 U	0.000020 U	0.000019 U	0.000019 U
Lindane	SW8081A	mg/L	0.004	0.0000074 U	0.0000070 U	0.0000070 U	0.0000074 U	0.0000070 U	0.0000070 U	0.0000074 U	0.0000070 U	0.0000070 U
Methoxychlor	SW8081A	mg/L	0.10	0.000082 U	0.000078 U	0.000078 U	0.000082 U	0.000078 U	0.000078 U	0.000082 U	0.000078 U	0.000078 U
Toxaphene	SW8081A	mg/L	0.005	0.00021 U	0.00020 U	0.00020 U	0.00021 U	0.00020 U	0.00020 U	0.00021 U	0.00020 U	0.00020 U
2,4-D	SW8151A	mg/L	0.10	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.043 B	0.031 U	0.035 B	0.031 U	0.062 B	0.034 B	0.045 B	0.031 U	0.032 B
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross Beta	SM900.0	pCi/L	18.8 mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P1	MW-P2	MW-P3	MW-P4	MW-P5	MW-P6
				MW-P1	MW-P2	MW-P3	MW-P4	MW-P5	MW-P6
				3/5/2008	3/5/2008	3/5/2008	3/5/2008	3/5/2008	3/5/2008
Chloride	E300.0	mg/L	619	106	166	216	433	390	88.1
Fluoride	E300.0	mg/L	28.6	0.15	0.12	0.36	0.12	0.11	0.18
Nitrate-N	E353.2	mg/L	26.6	2.2	0.11 U	0.47	0.13	0.11 U	0.67
Phenols	E420.3	mg/L	0.24	0.0090 U	0.0090 U	0.0090 U	0.0090 U	0.0090 U	0.0090 U
Sulfate	E300.0	mg/L	266	25.5	42.0	112	281	4.9 B	153
Total Organic Carbon	E415.1	mg/L	NS	1.4	2.3	4.8	4.9	1.7	3.7
Total Coliform	SM9222D	cfu/100mL	148.4	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	SW6010B	mg/L	0.05	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U
Barium	SW6010B	mg/L	1.0	0.132 B	0.205	0.131 B	0.0933 B	0.0972 B	0.210
Cadmium	SW6010B	mg/L	0.06	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
Chromium	SW6010B	mg/L	0.05	0.0092 B	0.0171	0.0015 U	0.0015 U	0.0213	0.0015 U
Lead	SW6010B	mg/L	0.10	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U
Manganese	SW6010B	mg/L	6.1	0.162	0.943	1.99	0.956	0.472	0.784
Selenium	SW6010B	mg/L	0.13	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U
Silver	SW6010B	mg/L	0.05	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
Sodium	SW6010B	mg/L	240	42.6	67.5	116	226	40.3	118
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000019 U
Lindane	SW8081A	mg/L	0.004	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U
Methoxychlor	SW8081A	mg/L	0.10	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.000078 U
Toxaphene	SW8081A	mg/L	0.005	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
2,4-D	SW8151A	mg/L	0.10	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	N/A	N/A	N/A	N/A	N/A	N/A
Gross Beta	SM900.0	pCi/L	18.8 mg/L	N/A	N/A	N/A	N/A	N/A	N/A
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P1							
				P-1-1	P-1-2	P-1-3	P-1-4	P-1-1	P-1-2	P-1-3	P-1-4
				3/10/2009	3/10/2009	3/11/2009	3/11/2009	7/7/2009	7/7/2009	7/8/2009	7/8/2009
Chloride	E300.0	mg/L	619	41.2	40.7	45.7	45.7	51.7	52.7	56.6	55.7
Fluoride	E300.0	mg/L	28.6	0.021 U	0.021 U	0.021 U	0.021 U	0.16	0.43	0.15	0.15
Nitrate-N	E353.2	mg/L	26.6	0.24	0.19	0.29	0.22	0.4	0.33	0.3	0.31
Phenols	E420.2	mg/L	0.24	0.040 U	0.040 U	0.040 U	0.040 U	.04 U	.04 U	.040 U	.040 U
Sulfate	E375.2	mg/L	266	31.7	36.6	31	33	41.6	39.5	44	39.9
Total Organic Carbon	E415.1	mg/L	NS	1.1	1.9	1.3	1.1	1.1	1.1	1.1	1.1
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Present	Present	Present	Absent	Absent	Absent	Absent
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.127 B	0.140 B	0.116 B	0.120 B	0.140 B	0.131 B	0.127 B	0.125 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.000320 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0018 B	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0020 B	0.0017 U
Manganese	SW6010B	mg/L	6.1	0.156	0.250	0.235	0.261	0.300	0.264	0.230	0.226
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	37.4	38.0	38.2	37.2	43.4	41.3	42.7	41.5
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 B	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00075 U	0.00075 U	0.00075 U	0.00075 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.036 B	0.028 U	0.028 U	0.032 B	.025 U	.041 B	.025 U	.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	N/A	N/A	N/A	N/A	3.00	3.00	2.99	4.25
Gross Beta	SW9310	pCi/L	18.8 mg/L	N/A	N/A	N/A	N/A	3.27±1.44	2.76±1.29	2.01±1.08	1.36
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	N/A	N/A	N/A	N/A	0.701±0.427	0.494	0.518	0.518

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P1							
				P-1-1	P-1-2	P-1-3	P-1-4	P-1-1	P-1-2	P-1-3	P-1-4
				10/20/2009	10/20/2009	10/21/2009	10/21/2009	12/16/2009	12/16/2009	12/18/2009	12/18/2009
Chloride	E300.0	mg/L	619	55.7	54.7	57.6	54.7	99.4	54.7	99.4	58.6
Fluoride	E300.0	mg/L	28.6	0.15	0.12	0.16	.0.15	0.14	0.13	0.12	0.11
Nitrate-N	E353.2	mg/L	26.6	0.071 B	0.10 B	0.075 B	0.10 B	0.094 B	0.078 B	0.034 U	0.099 B
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 B	0.024 B
Sulfate	E375.2	mg/L	266	40.3	40.3	44.0	42.0	41.2	44.0	49.0	43.6
Total Organic Carbon	E415.1	mg/L	NS	1.5	1.4	1.5	1.8	1.1	0.88 B	0.77 B	0.93 B
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Absent	Present	Present	Present	Present	Present	Present
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.143 B	0.136 B	0.136 B	0.151 B	0.154 B	0.149 B	0.159 B	0.139 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 B	0.0018 B
Manganese	SW6010B	mg/L	6.1	0.276	0.239	0.239	0.314	0.292	0.283	0.318	0.245
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	34.4	39.4	40.5	33.6	36.5	39.0	34.7	39.4
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.00015 B	0.000094 U	0.000094 U	0.000094 U	0.00015 B	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091U	0.000091U	0.000091U	0.000091U	0.000091U	0.000091U	0.000091U	0.000091U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	3.00	3.00	2.99±2.03	3.00	3.55	4.60	7.28	5.05
Gross Beta	SW9310	pCi/L	18.8 mg/L	6.38±2.13	4.88±2.08	3.53±1.27	2.27	3.19±1.25	3.87±1.50	5.69±3.15	2.60±1.69
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.577	0.537	0.689±0.423	0.561	0.596	0.607	0.61	0.65

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P2							
				P-2-1	P-2-2	P-2-3	P-2-4	P-2-1	P-2-2	P-2-3	P-2-4
				3/10/2009	3/10/2009	3/11/2009	3/11/2009	7/7/2009	7/7/2009	7/8/2009	7/8/2009
Chloride	E300.0	mg/L	619	94.4	124	109	99.4	99.4	94.4	95.4	85.5
Fluoride	E300.0	mg/L	28.6	0.021 U	0.021 U	0.036 B	0.057 B	0.12	0.12	0.11	0.11
Nitrate-N	E353.2	mg/L	26.6	0.057 B	0.046 B	0.048 B	0.034 U	.034 U	.034 U	.034 U	.034 U
Phenols	E420.2	mg/L	0.24	0.040 U	0.040 U	0.040 U	0.040 U	.040 U	.040 U	.040 U	.043 B
Sulfate	E375.2	mg/L	266	26.3	33.7	29.2	31.7	39.9	39.1	34.2	39.1
Total Organic Carbon	E415.1	mg/L	NS	1.7	1.9	2.4	4.1	1.7	1.7	2.0	2.0
Total Coliform	SM9222B	cfu/100mL	148.4	Present	Absent	Present	Present	Absent	Absent	Absent	Present
Arsenic	SW6010B	mg/L	0.05	0.0021 B	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.147 B	0.142 B	0.139 B	0.144 B	0.166 B	0.162 B	0.153 B	0.162 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00033 B	0.00033 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0020 B
Manganese	SW6010B	mg/L	6.1	0.729	1.53	1.65	1.94	2.34	2.58	2.67	2.42
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	67.7	68.5	67.8	67.6	73.8	69.1	70.0	68.7
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00075 U	0.00075 U	0.00075 U	0.00075 U	.00080 U	.00080 U	.00080 U	.00080 U
Silvex	SW8151A	mg/L	0.01	0.00014 U	0.00014 U	0.00014 U	0.00014 U	.00015 U	.00015 U	.00015 U	.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.045 B	0.032 B	0.034 B	0.028 U	.025 U	.025 U	.025 U	.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	N/A	N/A	N/A	N/A	3.56	6.59±4.57	3.06	3.75
Gross Beta	SW9310	pCi/L	18.8 mg/L	N/A	N/A	N/A	N/A	4.0±1.71	2.94±1.82	1.61±1.04	1.68±1.17
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	N/A	N/A	N/A	N/A	8.28±4.66	0.602±0.417	0.582	0.487

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P2							
				P-2-1	P-2-2	P-2-3	P-2-4	P-2-1	P-2-2	P-2-3	P-2-4
				10/20/2009	10/20/2009	10/21/2009	10/21/2009	12/16/2009	12/16/2009	12/18/2009	12/18/2009
Chloride	E300.0	mg/L	619	154	144	204	199	248	189	194	179
Fluoride	E300.0	mg/L	28.6	0.08 B	0.077 B	0.1	0.1	0.08 B	0.073 B	0.078 B	0.075 B
Nitrate-N	E353.2	mg/L	26.6	0.28	0.36	0.45	0.46	1.1	0.86	0.70	0.54
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
Sulfate	E375.2	mg/L	266	18.1	20.6	22.6	19.3	26.3	31.7	23.9	25.1
Total Organic Carbon	E415.1	mg/L	NS	2.2	2.1	2.3	2.5	1.6	1.7	1.6	1.7
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Present	Absent	Absent	Absent	Absent	Present	Absent
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.168 B	0.174 B	0.164 B	0.171 B	0.165 B	0.164 B	0.134 B	0.137 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00038 B	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0048 B	0.0021 B	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0020 B	0.0024 B	0.0017 U	0.0017 U	0.0020 B	0.0017 U	0.0017 U	0.0018 B
Manganese	SW6010B	mg/L	6.1	2.11	2.34	2.24	2.39	2.24	2.40	1.93	1.98
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	98.7	99.6	97.0	99.0	115	113	93.7	94.1
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.046 B	0.038 B	0.025 U	0.038 B
Gross Alpha	SW9310	pCi/L	10.5 mg/L	6.85	7.23	4.63	5.12	4.63	7.54	6.87	6.46
Gross Beta	SW9310	pCi/L	18.8 mg/L	6.00±2.52	6.36±2.18	3.69	5.58	4.58±2.60	3.81±2.35	5.46	5.65±3.55
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	1.42±0.710	0.677±0.377	0.626±0.333	0.831±0.398	0.567	N/A	0.547	0.371

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P3							
				P-3-1	P-3-2	P-3-3	P-3-4	P-3-1	P-3-2	P-3-3	P-3-4
				3/10/2009	3/10/2009	3/11/2009	3/11/2009	7/7/2009	7/7/2009	7/8/2009	7/8/2009
Chloride	E300.0	mg/L	619	129	164	104	124	194	184	144	149
Fluoride	E300.0	mg/L	28.6	0.021 U	0.021 U	0.045 B	0.023 B	0.20	2.1	0.21	0.18
Nitrate-N	E353.2	mg/L	26.6	0.034 U	0.034 U	0.034 U	0.034 U	.034 U	.045 B	.034 U	.034 U
Phenols	E420.2	mg/L	0.24	0.040 U	0.040 U	0.040 U	0.040 U	.040 U	.040 U	.040 U	.040 U
Sulfate	E375.2	mg/L	266	156	162	151	158	193	185	176	172
Total Organic Carbon	E415.1	mg/L	NS	3.9	3.8	4.0	4.0	4.1	4.4	4.1	4.0
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Present	Present	Present	Present	Present	Absent	Absent
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.137 B	0.148 B	0.148 B	0.147 B	0.110 B	0.124 B	0.125 B	0.129 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00036 B	0.00037 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0028 B	0.0024 B	0.0017 U	0.0017 B	0.0019 B	0.0022 B
Manganese	SW6010B	mg/L	6.1	3.57	3.56	3.68	3.96	4.91	4.28	4.92	4.70
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	138	134	129	132	155	154	156	151
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00075 U	0.00075 U	0.00075 U	0.00075 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.028 U	0.054 B	0.057 B	0.052	<0.10	.032 B	<0.10	0.044 B
Gross Alpha	SW9310	pCi/L	10.5 mg/L	N/A	N/A	N/A	N/A	6.7	N/A	8.73±6.70	N/A
Gross Beta	SW9310	pCi/L	18.8 mg/L	N/A	N/A	N/A	N/A	10.7±4.14	N/A	5.33±2.93	N/A
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	N/A	N/A	N/A	N/A	0.814±0.448	N/A	0.686±0.383	N/A

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P3							
				P-3-1	**P-3-2**	**P-3-3**	**P-3-4**	**P-3-1**	**P-3-2**	**P-3-3**	**P-3-4**
				10/20/2009	**10/20/2009**	**10/21/2009**	**10/21/2009**	**12/16/2009**	**12/16/2009**	**12/18/2009**	**12/18/2009**
Chloride	E300.0	mg/L	619	139	134	179	144	214	219	184	234
Fluoride	E300.0	mg/L	28.6	0.12	0.12	0.15	0.15	0.12	0.12	0.12	0.11
Nitrate-N	E353.2	mg/L	26.6	0.042 B	0.038 B	0.034 U	0.034 U	0.034 B	0.034 U	0.034 U	0.034 U
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 U	0.046 B	0.024 U	0.024 U	0.024 U	0.033 B	0.035 B
Sulfate	E375.2	mg/L	266	144	137	135	138	140	145	150	150
Total Organic Carbon	E415.1	mg/L	NS	3.5	3.7	3.8	5.1	3.2	2.9	3.1	2.9
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Absent	Absent	Absent	Present	Present	Present	Present
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.223	0.154 B	0.164 B	0.198 B	0.152 B	0.144 B	0.134 B	0.128 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0020 B	0.0022 B	0.0017 B	0.0017 U	0.0022 B	0.0017 B	0.0024 B	0.0017 U
Manganese	SW6010B	mg/L	6.1	2.20	3.37	4.04	2.07	4.74	5.29	4.50	4.34
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	116	112	129	105	130	134	125	119
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.048 B	< 0.10	0.041 B	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Gross Alpha	SW9310	pCi/L	10.5 mg/L	4.74	9.32±5.12	5.94±3.28	7.17	11.0	10.9±7.42	14.4	15.0
Gross Beta	SW9310	pCi/L	18.8 mg/L	13.3±3.59	13.6±3.80	14.2±3.57	11.0±3.84	12.4±3.49	14.9±4.51	9.48±4.85	12.8±4.90
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.669±0.397	0.829±0.431	0.622±0.375	0.977±0.388	0.346±0.238	0.658	0.750±0.303	0.681

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P4							
				P-4-1	P-4-2	P-4-3	P-4-4	P-4-1	P-4-2	P-4-3	P-4-4
				3/10/2009	3/10/2009	3/11/2009	3/11/2009	7/7/2009	7/7/2009	7/8/2009	7/8/2009
Chloride	E300.0	mg/L	619	79.5	79.5	78.5	0.094 B	74.5	94.4	81.5	79.5
Fluoride	E300.0	mg/L	28.6	0.021 U	0.021 U	0.021 U	0.094 B	0.13	0.13	0.11	0.11
Nitrate-N	E353.2	mg/L	26.6	0.29	0.28	0.20	0.0040 U	.034 U	.034 U	.034 U	.034 U
Phenols	E420.2	mg/L	0.24	0.040 U	0.040 U	0.040 U	0.021 U	.040 U	.040 U	.040 U	.040 U
Sulfate	E375.2	mg/L	266	152	151	150	152	160	164	155	156
Total Organic Carbon	E415.1	mg/L	NS	3.2	2.4	3.1	2.8	2.7	2.5	2.7	2.7
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Present	Present	Present	Absent	Present	Present	Present
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0021 B	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.110 B	0.109 B	0.111 B	0.120 B	0.122 B	0.0965 B	0.110 B	0.137 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00037 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Manganese	SW6010B	mg/L	6.1	0.366	0.761	0.845	0.944	0.106	1.32	1.18	0.991
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00087 B	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	79.0	78.0	76.0	74.2	82.8	90.7	84.5	77.6
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00075 U	0.00075 U	0.00075 U	0.00075 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.050 B	0.035 B	0.028 U	0.028 U	< 0.10	.025 U	0.025 U	0.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	8.27	1.77	-1.02	-0.365	5.43	6.15	4.28	4.15
Gross Beta	SW9310	pCi/L	18.8 mg/L	1.11	4.66	2.94	-1.14	2.98	3.56	2.32±1.34	2.49±1.55
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.389	-0.109	0.307	0.146	0.805±0.510	0.44	0.451±0.306	0.45

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P4							
				P-4-1	P-4-2	P-4-3	P-4-4	P-4-1	P-4-2	P-4-3	P-4-4
				10/20/2009	10/20/2009	10/21/2009	10/21/2009	12/16/2009	12/16/2009	12/18/2009	12/18/2009
Chloride	E300.0	mg/L	619	92.4	91.4	99.4	104	159	144	144	134
Fluoride	E300.0	mg/L	28.6	.089 B	.087 B	0.11	0.11	0.080 B	0.081 B	0.069 B	0.070 B
Nitrate-N	E353.2	mg/L	26.6	0.034 U	0.037 B	0.034 U	0.034 U	0.03	0.22	0.32	0.034 U
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.025 B	0.024 U	0.024 U
Sulfate	E375.2	mg/L	266	170	179	176	175	214	215	205	207
Total Organic Carbon	E415.1	mg/L	NS	2.9	3.0	4.6	4.9	2.8	2.8	2.9	2.8
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Absent	Absent	Present	Absent	Present	Present	Present
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 B	0.0020 U	0.0020 U	0.0020 U	0.0020 B	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.186 B	0.175 B	0.173 B	0.169 B	0.0808 B	0.105 B	0.107 B	0.106 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0023 B	0.0021 B	0.0017 U	0.0017 U	0.0023 B	0.0021 B	0.0017 U	0.0017 U
Manganese	SW6010B	mg/L	6.1	0.861	0.861	0.812	0.807	0.406	0.677	0.701	0.692
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	83.3	85.2	84.3	83.0	119	112	104	86.8
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.028 B	0.025 U	0.025 U	0.027 B
Gross Alpha	SW9310	pCi/L	10.5 mg/L	7.31±3.50	5.21	5.99±3.73	4.42	4.90	4.81	11.0	14.1
Gross Beta	SW9310	pCi/L	18.8 mg/L	6.69±2.44	2.92	7.84±2.54	4.08±2.10	3.29	3.48	7.13	9.37±4.96
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.768±0.364	1.48±0.482	0.469	0.759±0.397	0.556	0.465	0.658±0.302	0.424±0.288

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P5							
				P-5-1	P-5-2	P-5-3	P-5-4	P-5-1	P-5-2	P-5-3	P-5-4
				3/10/2009	3/10/2009	3/11/2009	3/11/2009	7/7/2009	7/7/2009	7/8/2009	7/8/2009
Chloride	E300.0	mg/L	619	114	0.095 B	114	0.069 B	71.6	70.6	73.5	65.6
Fluoride	E300.0	mg/L	28.6	0.021 U	0.11	0.088 B	0.081 B	0.13	0.15	0.11	.096 B
Nitrate-N	E353.2	mg/L	26.6	0.13	0.015	0.11	0.012	0.24	0.20	0.19	0.15
Phenols	E420.2	mg/L	0.24	0.040 U	0.021 U	0.040 U	0.021 U	.048 B	0.04 U	.040 U	.040 U
Sulfate	E375.2	mg/L	266	68.7	61	54	53	52.3	49.8	53.9	46.1
Total Organic Carbon	E415.1	mg/L	NS	2.4	2.4	2.0	2.2	1.6	1.7	1.6	1.6
Total Coliform	SM9222B	cfu/100mL	148.4	Present	Present	Present	Present	Present	Present	Present	Present
Arsenic	SW6010B	mg/L	0.05	0.0033 B	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 B
Barium	SW6010B	mg/L	1.0	0.149 B	0.134 B	0.126 B	0.119 B	0.0981 B	0.0934 B	0.0934 B	0.0934 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0061 B	0.0019 U	0.0035 B	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0019 B	0.0025 B	0.0020 B	0.0017 U	0.0017 U	0.0017 U
Manganese	SW6010B	mg/L	6.1	0.0949	0.166	0.285	0.284	0.0435	0.296	0.285	0.424
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	97.4	85.2	89.7	78.1	68.2	67.4	67.7	68.5
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00075 U	0.00075 U	0.00075 U	0.00075 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.039 B	0.033 B	0.028 U	0.032 B	0.032 B	0.038 B	0.025 U	0.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	-1.44	1.78	-1.32	-1.44	3.00	3.00	2.98	3.00
Gross Beta	SW9310	pCi/L	18.8 mg/L	3.78	1.83	1.57	3.78	1.52±1.01	1.26±0.825	1.39	1.16
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.446	-0.015	0.394	0.446	0.717±0.453	0.565	1.07±0.546	0.561

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P5							
				P-5-1	P-5-2	P-5-3	P-5-4	P-5-1	P-5-2	P-5-3	P-5-4
				10/20/2009	10/20/2009	10/21/2009	10/21/2009	12/16/2009	12/16/2009	12/18/2009	12/18/2009
Chloride	E300.0	mg/L	619	90.4	82.5	85.5	76.5	109	119	99.4	104
Fluoride	E300.0	mg/L	28.6	0.063 B	0.056 B	0.082 B	0.073 B	0.075 B	0.059 B	0.056 B	0.047 B
Nitrate-N	E353.2	mg/L	26.6	0.12	0.12	0.10 B	0.096 B	0.039 B	0.073 B	0.039 B	0.089 B
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 U	.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.027 B
Sulfate	E375.2	mg/L	266	57.2	50.6	51.4	51	56.8	53.9	50.2	52.3
Total Organic Carbon	E415.1	mg/L	NS	2.0	2.0	3.8	3.0	1.8	1.9	1.8	2.0
Total Coliform	SM9222B	cfu/100mL	148.4	Present	Present	Present	Present	Absent	Absent	Absent	Present
Arsenic	SW6010B	mg/L	0.05	0.0020 B	0.0020 U	0.0020 U	0.0020 B	0.0020 B	0.0020 U	0.0020 U	0.0020 B
Barium	SW6010B	mg/L	1.0	0.109 B	0.104 B	0.103 B	0.0987 B	0.122 B	0.107 B	0.101 B	0.0897 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0020 B	0.0017 U
Manganese	SW6010B	mg/L	6.1	0.437	0.583	0.707	0.710	1.03	0.654	0.599	0.663
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	72.8	61.7	60.5	53.9	55.5	47.8	46.9	39.6
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000018 B	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.041 B	0.025 U	0.025 B	0.025 U	0.025 U	0.025 U	0.026 B	0.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	3.49±2.29	2.66	2.98	2.99	3.10	2.68	5.20	4.82
Gross Beta	SW9310	pCi/L	18.8 mg/L	3.90±1.96	2.87	3.13±1.26	4.17±2.09	1.87±1.02	3.42±1.45	3.25	3.27
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.559	0.584±0.332	0.626	0.456	0.662	0.52	0.667	0.586

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P6							
				P-6-1	P-6-2	P-6-3	P-6-4	P-6-1	P-6-2	P-6-3	P-6-4
				3/10/2009	3/10/2009	3/11/2009	3/11/2009	7/7/2009	7/7/2009	7/8/2009	7/8/2009
Chloride	E300.0	mg/L	619	4.0	104	1.0	0.73	92.4	93.4	91.4	93.4
Fluoride	E300.0	mg/L	28.6	0.021 U	0.021 U	1.1	0.76	0.21	0.19	0.19	0.19
Nitrate-N	E353.2	mg/L	26.6	1.3	1.7	0.064	0.029	.034 U	.034 U	.034 U	.034 U
Phenols	E420.2	mg/L	0.24	0.040 U	0.040 U	0.031 B	0.034 B	.040 U	.040 U	.040 U	.040 U
Sulfate	E375.2	mg/L	266	150	158	158	162	163	162	167	167
Total Organic Carbon	E415.1	mg/L	NS	3.3	4.0	4.1	4.1	4.0	3.8	4.0	4.1
Total Coliform	SM9222B	cfu/100mL	148.4	Present	Present	Present	Present	Present	Present	N/A	Present
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.184 B	0.188 B	0.182 B	0.189 B	0.238	0.246	0.268	0.271
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0035
Manganese	SW6010B	mg/L	6.1	0.539	0.553	0.566	0.558	0.623	0.638	0.642	0.622
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	98.5	98.2	94.8	94.9	110	110	114	112
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000019 U	0.000019 U	0.000019 U	0.000019 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000070 U	0.0000070 U	0.0000070 U	0.0000070 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.000078 U	0.000078 U
Toxaphene	SW8081A	mg/L	0.005	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00075 U	0.00075 U	0.00075 U	0.00075 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Silvex	SW8151A	mg/L	0.01	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.028 U	0.028 U	0.028 U	0.028 U	.026 B	.025 U	.025 U	.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	-4.41	0.967	0.446	-6.35	4.77	3.78	5.1	6.94±4.89
Gross Beta	SW9310	pCi/L	18.8 mg/L	5.55	5.12	8.49	8.14	7.22±2.70	5.98±2.25	4.61±2.11	4.06±1.92
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.888	0.624	0.292	0.968	0.903±0.467	1.27±0.505	0.991±0.508	0.627±0.357

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P6							
				P-6-1	P-6-2	P-6-3	P-6-4	P-6-1	P-6-2	P-6-3	P-6-4
				10/20/2009	10/20/2009	10/21/2009	10/21/2009	12/16/2009	12/16/2009	12/18/2009	12/18/2009
Chloride	E300.0	mg/L	619	97.4	99.4	99.4	107	109	144	119	99.4
Fluoride	E300.0	mg/L	28.6	0.16	0.17	0.19	0.19	0.16	0.16	0.15	0.15
Nitrate-N	E353.2	mg/L	26.6	0.039 B	0.055 B	0.081 B	0.083 B	2.0	1.4	0.93	0.72
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 U	0.024 U	0.029 B	0.027 B	0.024 U	0.024 U	0.024 U
Sulfate	E375.2	mg/L	266	177	178	168	173	168	172	174	173
Total Organic Carbon	E415.1	mg/L	NS	3.6	3.7	3.2	3.6	3.1	3.1	3	3.1
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Absent	Absent	Absent	Present	Absent	Present	Present
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.240	0.256	0.251	0.250	0.182 B	0.189 B	0.174 B	0.189 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0027 B	0.0017 U	0.0017 U	0.0017 U	0.0027 B	0.0017 U	0.0019 B
Manganese	SW6010B	mg/L	6.1	0.517	0.510	0.507	0.480	0.398	0.420	0.386	0.424
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	99.3	99.1	101	96.0	99.900	102	94.1	101
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.025 U	0.025 U	0.027 B	0.034 B	0.025 U	0.025 U	0.025 U	0.025 U
Gross Alpha	SW9310	pCi/L	10.5 mg/L	1.25	4.69	7.05±3.82	4.54	4.30	7.43	10.1	10.0
Gross Beta	SW9310	pCi/L	18.8 mg/L	1.45±0.591	11.1±3.01	7.50±2.45	11.2±2.87	10.2±3.01	8.13±2.79	6.07	6.10±4.23
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.556	1.28±0.521	0.833±0.452	09.29±0.459	0.660±0.353	0.631	0.546±0.349	0.539

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P1				MW-P2			
				P-1-1	P-1-2	P-1-3	P-1-4	P-2-1	P-2-2	P-2-3	P-2-4
				3/30/2010	3/30/2010	3/31/2010	3/31/2010	3/30/2010	3/30/2010	3/31/2010	3/31/2010
Chloride	E300.0	mg/L	619	69.6	84.5	115	90	89.4	114	95	110
Fluoride	E300.0	mg/L	28.6	0.15	0.13	0.13	0.13	0.12	0.11	0.12	0.12
Nitrate-N	E353.2	mg/L	26.6	0.13	0.13	0.075 B	0.091 B	0.09 B	0.061 B	0.074 B	0.0147 B
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
Sulfate	E375.2	mg/L	266	44.9	39.9	45.7	40.7	25.9	28.8	29.6	32.1
Total Organic Carbon	E415.1	mg/L	NS	1.2	1.0	1.0	0.89 B	1.6	1.6	1.5	1.6
Total Coliform	SM9222B	cfu/100mL	148.4	Present	Present	Present	Present	Absent	Absent	Absent	Absent
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.167 B	0.145 B	0.149 B	0.149 B	0.172 B	0.171 B	0.169 B	0.176 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Manganese	SW6010B	mg/L	6.1	0.277	0.230	0.355	0.327	1.39	1.57	1.61	1.86
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	40.7	42.4	41.6	44.5	61.6	63.3	61.6	65.5
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.00015	0.00015	0.00015
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.008 U	0.008 U	0.02 B	0.016 B	0.026 B	0.022 B	0.033 B	0.012 B
Gross Alpha	SW9310	pCi/L	10.5 mg/L	7.93	12.4	3.00	3.00	9.31	10.8	3.00	3.55
Gross Beta	SW9310	pCi/L	18.8 mg/L	3.46	11.5	3.21±1.25	2.15±0.902	3.84	3.07	2.85±1.37	3.22±1.83
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.623	0.618	0.585	0.665	0.665±0.377	0.652	0.476	0.566

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P3				MW-P4			
				P-3-1	**P-3-2**	**P-3-3**	**P-3-4**	**P-4-1**	**P-4-2**	**P-4-3**	**P-4-4**
				3/30/2010	**3/30/2010**	**3/31/2010**	**3/31/2010**	**3/30/2010**	**3/30/2010**	**3/31/2010**	**3/31/2010**
Chloride	E300.0	mg/L	619	199	214	220	235	229	169	140	145
Fluoride	E300.0	mg/L	28.6	0.25	0.23	0.20	0.20	0.11	0.11	0.59 B	0.079 B
Nitrate-N	E353.2	mg/L	26.6	0.74	0.46	0.22	0.17	0.18	0.092 B	0.5 B	0.069 B
Phenols	E420.2	mg/L	0.24	0.024 U	0.042 B	0.024 U	0.024 U	0.024 U	0.024 B	0.024 U	0.024 U
Sulfate	E375.2	mg/L	266	161	161	172	165	237	203	185	172
Total Organic Carbon	E415.1	mg/L	NS	3.8	3.6	3.5	3.3	3.0	2.6	2.5	2.3
Total Coliform	SM9222B	cfu/100mL	148.4	Absent	Absent	Present	Absent	Absent	Absent	Absent	Absent
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.0923 B	.0120 B	0.103 B	0.113 B	0.101 B	0.106 B	0.106 B	0.108 B
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Manganese	SW6010B	mg/L	6.1	4.35	4.62	4.80	5.07	0.820	0.902	0.895	0.930
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	0.00088 B	0.00080 U	0.00080 U	0.00080 U	0.00080 B	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	163	165	158	166	135	118	104	96.7
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.00018	0.00017	0.00021	0.000091 U	0.000091 U	0.000091 U	0.000091 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.015 B	0.012 B	0.061 B	0.065 B	0.016 B	0.026 B	0.014 B	0.014 B
Gross Alpha	SW9310	pCi/L	10.5 mg/L	15.6	16.2	5.58	5.54	8.27	1.77	-1.02	-0.365
Gross Beta	SW9310	pCi/L	18.8 mg/L	11.3±6.24	8.26	11.0±3.20	9.52±2.61	1.11	4.66	2.94	-1.14
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.563±0.339	0.526	0.637	0.572±0.344	0.389	-0.109	0.307	0.146

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P5				MW-P6			
				P-5-1	P-5-2	P-5-3	P-5-4	P-6-1	P-6-2	P-6-3	P-6-4
				3/30/2010	3/30/2010	3/31/2010	3/31/2010	3/30/2010	3/30/2010	3/31/2010	3/31/2010
Chloride	E300.0	mg/L	619	99.4	94.4	90	90	139	139	140	135
Fluoride	E300.0	mg/L	28.6	0.09 B	0.087 B	0.07 B	0.083 B	0.018	0.019	0.17	0.17
Nitrate-N	E353.2	mg/L	26.6	0.073 B	0.089 B	0.073 B	0.064 B	1.8	1.0	0.73	0.42
Phenols	E420.2	mg/L	0.24	0.024 U	0.024 B	0.059	0.024 U	0.03 B	0.024 U	0.024 U	0.024 U
Sulfate	E375.2	mg/L	266	34.2	42	39.9	38.3	169	169	174	168
Total Organic Carbon	E415.1	mg/L	NS	1.4	1.4	1.4	1.3	2.9	2.9	3.2	3.2
Total Coliform	SM9222B	cfu/100mL	148.4	Present	Present	Present	Absent	Absent	Absent	Absent	Absent
Arsenic	SW6010B	mg/L	0.05	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
Barium	SW6010B	mg/L	1.0	0.0867 B	0.0791 B	0.0813 B	0.0815 B	0.180 B	0.208	0.203	0.214
Cadmium	SW6010B	mg/L	0.06	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Chromium	SW6010B	mg/L	0.05	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U
Lead	SW6010B	mg/L	0.10	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Manganese	SW6010B	mg/L	6.1	0.209	0.266	0.249	0.336	0.688	0.701	0.677	0.656
Selenium	SW6010B	mg/L	0.13	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U	0.00320 U
Silver	SW6010B	mg/L	0.05	.	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sodium	SW6010B	mg/L	240	45.7	45.1	47.1	49.5	123	121	114	110
Mercury	SW7470A	mg/L	0.002	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U	0.000094 U
Endrin	SW8081A	mg/L	0.0002	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U	0.000018 U
Lindane	SW8081A	mg/L	0.004	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U	0.0000078 U
Methoxychlor	SW8081A	mg/L	0.10	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	SW8081A	mg/L	0.005	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2,4-D	SW8151A	mg/L	0.10	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Silvex	SW8151A	mg/L	0.01	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U	0.000091 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.0097 B	0.024 B	0.018 B	0.017 B	0.022 B	0.021 B	0.016 B	0.021 B
Gross Alpha	SW9310	pCi/L	10.5 mg/L	-1.44	1.78	-1.32	0.634	-4.41	0.967	0.446	-6.35
Gross Beta	SW9310	pCi/L	18.8 mg/L	3.78	1.83	1.57	2.27	5.55	5.12	8.49	8.14
Radium 226 + Alpha Emitting Radium Isotopes	SM903.1	pCi/L	4.1 mg/L	0.446	-0.015	0.394	0.216	0.888	0.624	0.292	0.968

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P1				MW-P2			
				EUL-WG-P1-010	EUL-WG-P1-020	EUL-WG-P1-030	EUL-WG-P1-043	EUL-WG-P2-010	EUL-WG-P2-020	EUL-WG-P2-030	EUL-WG-P2-040
				1/27/2011	4/25/2011	7/27/2011	11/10/2011	1/27/2011	4/25/2011	7/27/2011	11/10/2011
Chloride	E300.0	mg/L	619	61.4	58.5	51.4	51.4	130	72.0	109	147
Fluoride	E300.0	mg/L	28.6	0.110 JL	0.185 J	0.112 J	<0.100 UJL	<0.100 UJL	0.171 J	0.108 J	<0.100 UJL
Nitrate-N	E300.0	mg/L	26.6	0.317 J	0.196 J	<0.100 U	<0.100 U	0.473 J	0.389 J	0.181 J	4.69
Sulfate	E300.0	mg/L	266	39.7	53.3	52.0	57.8	20.5	13.3	17.7	18.9
Total Organic Carbon	SM5310C	mg/L	NS	2.35	1.43	1.24	0.771	1.99	2.01	1.48	12.6
Fecal Coliform	SM9222D	cfu/100mL	148.4	<2 U	N/A	<10 U	N/A	<2 U	N/A	<10 U	N/A
Arsenic	SW6020	mg/L	0.05	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U
Barium	SW6020	mg/L	1.0	0.134	N/A	0.180	0.190	0.123	N/A	0.124	0.124
Cadmium	SW6020	mg/L	0.06	<0.000300 U	N/A	<0.000300 U	<0.000300 U	<0.000300 U	N/A	<0.000300 U	0.000636 J
Chromium	SW6020	mg/L	0.05	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U
Lead	SW6020	mg/L	0.1	0.00178	N/A	0.000471 J	0.000322 J	0.00208	N/A	<0.000300 U	0.000336 J
Manganese	SW6020	mg/L	6.1	0.145	N/A	0.394	0.378	1.21	N/A	2.84	2.62
Selenium	SW6020	mg/L	0.13	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U
Silver	SW6020	mg/L	0.05	<0.00100 U	N/A	<0.00100 U	<0.00100 U	<0.00100 U	N/A	<0.00100 U	<0.00100 U
Sodium	SW6020	mg/L	240	40.6	N/A	37.8	37.7 J	78.6	N/A	73.3	90.3 J
Mercury	SW7470A	mg/L	0.002	<0.0000800 U	N/A	<0.0000800 U	<0.0000800 U	<0.0000800 U	N/A	<0.0000800 U	<0.0000800 U
Endrin	SW8270C	mg/L	0.0002	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Lindane	SW8270C	mg/L	0.004	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-D	SW8321B	mg/L	0.1	<0.0000999 U	<0.0000100 U	<0.0000978 U	<0.0000984 U	<0.0000999 U	<0.0000100 U	<0.0000978 U	<0.0000984 U
Silvex	SW8321B	mg/L	0.01	<0.0000999 U	<0.0000100 U	<0.0000978 U	<0.0000984 U	<0.0000999 U	<0.0000100 U	<0.0000978 U	<0.0000984 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.0299	N/A	<0.0200 U	0.0110	0.0299	N/A	<0.0200 U	0.0110
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	1.7	0.55	0 UJL	0 U	-0.65	-1.1	0.19 JL	2.1
Gross Beta	SM900.0	pCi/L	18.8 mg/L	9.5	4.4	1.0 U	5.7	5.9	4.9	4.5 U	5.5
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	1.0	0.46	0.76	0.8	0.64	0.38	0.39 U	0.4
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.00100 U	<0.00100 U	<0.000200 U	<0.000200 U	<0.00100 U	<0.00100 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2-Chlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000500 U	<0.000500 U	<0.000200 U	<0.000200 U	<0.000500 U	<0.000500 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.00100 U	<0.00100 U	<0.000400 U	<0.000400 U	<0.00100 U	<0.00100 U
Pentachlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Phenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	<0.000200U X7	<0.000200U X7	<0.000200U X7	<0.000200U X7	<0.000200U X7	<0.000200U X7	<0.000200U X7	<0.000200U X7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P3				MW-P4			
				EUL-WG-P3-013	EUL-WG-P3-020	EUL-WG-P3-030	EUL-WG-P3-040	EUL-WG-P4-010	EUL-WG-P4-020	EUL-WG-P4-030	EUL-WG-P4-040
				1/27/2011	4/25/2011	7/27/2011	11/10/2011	1/27/2011	4/25/2011	7/27/2011	11/10/2011
Chloride	E300.0	mg/L	619	214	224	226	149	105	119	105	100
Fluoride	E300.0	mg/L	28.6	0.137 J	<0.100 U	<0.100 U	<0.100 UJL	0.129 J	<0.100 U	<0.100 U	<0.100 UJL
Nitrate-N	E300.0	mg/L	26.6	0.103 J	<0.100 U	<0.100 U	<0.100 U	0.310 J	<0.100 U	<0.100 U	<0.100 U
Sulfate	E300.0	mg/L	266	153	132	128	99.7	181	196	175	149
Total Organic Carbon	SM5310C	mg/L	NS	4.72	3.53	3.02	2.08	4.24	3.74	3.31	15.6
Fecal Coliform	SM9222D	cfu/100mL	148.4	<2 U	N/A	<10 U	N/A	<2 U	N/A	<10 U	N/A
Arsenic	SW6020	mg/L	0.05	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U	N/A	<0.00200 U	0.00228 J
Barium	SW6020	mg/L	1.0	0.128	N/A	0.130	0.107	0.122	N/A	0.148	0.118
Cadmium	SW6020	mg/L	0.06	<0.000300 U	N/A	<0.000300 U	<0.000300 U	<0.000300 U	N/A	<0.000300 U	<0.000300 U
Chromium	SW6020	mg/L	0.05	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U
Lead	SW6020	mg/L	0.1	0.000671 J	N/A	<0.000300 U	<0.000300 U	0.00134	N/A	0.000365 J	0.000483 J
Manganese	SW6020	mg/L	6.1	4.33	N/A	4.77	3.98	0.559	N/A	0.915	0.715
Selenium	SW6020	mg/L	0.13	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U
Silver	SW6020	mg/L	0.05	<0.00100 U	N/A	<0.00100 U	<0.00100 U	<0.00100 U	N/A	<0.00100 U	<0.00100 U
Sodium	SW6020	mg/L	240	160	N/A	148	110 J	88.8	N/A	88.3	117 J
Mercury	SW7470A	mg/L	0.002	<0.0000800 U	N/A	<0.0000800 U	<0.0000800 U	<0.0000800 U	N/A	<0.0000800 U	<0.0000800 U
Endrin	SW8270C	mg/L	0.0002	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Lindane	SW8270C	mg/L	0.004	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-D	SW8321B	mg/L	0.1	<0.000100 U	<0.000100 U	<0.0000988 U	<0.0000983 U	<0.0000998 U	<0.000100 U	<0.0000995 U	<0.0000984 U
Silvex	SW8321B	mg/L	0.01	<0.000100 U	<0.000100 U	<0.0000988 U	<0.0000983 U	<0.0000998 U	<0.000100 U	<0.0000995 U	<0.0000984 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.0951	N/A	<0.0200 U	0.0309	0.144	N/A	0.0826	0.0223
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	2.3	-0.15	0.34 JL	0 U	0.95	0.83	2.3 JL	0 U
Gross Beta	SM900.0	pCi/L	18.8 mg/L	13	14	4.8 U	8.6	3.4	7.7	5.3 U	0.57
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	1.1	0.41	1.0	0.72	0.87	0.61	0.94	0.82
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.00100 U	<0.00100 U	<0.000200 U	<0.000200 U	<0.00100 U	<0.00100 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2-Chlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000500 U	<0.000500 U	<0.000200 U	<0.000200 U	<0.000500 U	<0.000500 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.00100 U	<0.00100 U	<0.000400 U	<0.000400 U	<0.00100 U	<0.00100 U
Pentachlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Phenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P5				
				EUL-WG-P5-010	EUL-WG-P5-020	EUL-WG-P5-030	EUL-WG-P5-040	EUL-WG-P5-041
				1/27/2011	4/25/2011	7/27/2011	11/10/2011	11/10/2011
Chloride	E300.0	mg/L	619	102	88.1	96.9	124	127
Fluoride	E300.0	mg/L	28.6	0.100 JL	0.165 J	<0.100 U	<0.100 UJL	<0.100 UJL
Nitrate-N	E300.0	mg/L	26.6	0.125 J	<0.100 U	<0.100 U	<0.100 U	<0.100 U
Sulfate	E300.0	mg/L	266	50.8	55.6	56.1	66.8	66.6
Total Organic Carbon	SM5310C	mg/L	NS	3.36	2.28	2.20	2.15	2.29
Fecal Coliform	SM9222D	cfu/100mL	148.4	<2 U	N/A	<10 U	N/A	N/A
Arsenic	SW6020	mg/L	0.05	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U
Barium	SW6020	mg/L	1	0.0842	N/A	0.101	0.134	0.133
Cadmium	SW6020	mg/L	0.06	<0.000300 U	N/A	<0.000300 U	<0.000300 U	<0.000300 U
Chromium	SW6020	mg/L	0.05	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U
Lead	SW6020	mg/L	0.1	0.00345	N/A	0.000361 J	0.000300 J	0.000343 J
Manganese	SW6020	mg/L	6.1	0.464	N/A	0.604	1.60	1.57
Selenium	SW6020	mg/L	0.13	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U
Silver	SW6020	mg/L	0.05	<0.00100 U	N/A	<0.00100 U	<0.00100 U	<0.00100 U
Sodium	SW6020	mg/L	240	77.9	N/A	60.8	79.4 J	79.4 J
Mercury	SW7470A	mg/L	0.002	<0.0000800 U	N/A	<0.0000800 U	<0.0000800 U	<0.0000800 U
Endrin	SW8270C	mg/L	0.0002	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Lindane	SW8270C	mg/L	0.004	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-D	SW8321B	mg/L	0.1	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Silvex	SW8321B	mg/L	0.01	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	N/A	N/A	0.0429	0.0106	N/A
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	0.08	-0.5	0 UJL	1.9 J	0 UJ
Gross Beta	SM900.0	pCi/L	18.8 mg/L	1.0	5.7	3.2 U	2.7 J	5.5 J
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	0.48	0.1	0.08 U	0.3 J	0.72 J
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.00100 U	<0.00100 U	<0.00100 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2-Chlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000500 U	<0.000500 U	<0.000500 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.00100 U	<0.00100 U	<0.00100 U
Pentachlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Phenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P6					
				EUL-WG-P6-010	EUL-WG-P6-011	EUL-WG-P6-020	EUL-WG-P6-030	EUL-WG-P6-031	EUL-WG-P6-040
				1/27/2011	1/27/2011	4/25/2011	7/27/2011	7/27/2011	11/10/2011
Chloride	E300.0	mg/L	619	106	105	103	101	100	85.1
Fluoride	E300.0	mg/L	28.6	0.179 J	0.168 J	0.182 J	0.136 J	0.133 J	<0.100 UJL
Nitrate-N	E300.0	mg/L	26.6	1.76	1.63	1.69	<0.100 U	<0.100 U	<0.100 U
Sulfate	E300.0	mg/L	266	166	165	164	148	148	132
Total Organic Carbon	SM5310C	mg/L	NS	4.80	4.74	3.81	3.19	3.06	2.41
Fecal Coliform	SM9222D	cfu/100mL	148.4	<2 U	<2 U	N/A	<10 U	<10 U	NA
Arsenic	SW6020	mg/L	0.05	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U
Barium	SW6020	mg/L	1	0.157	0.162	N/A	0.173	0.171	0.172
Cadmium	SW6020	mg/L	0.06	<0.000300 U	<0.000300 U	N/A	<0.000300 U	<0.000300 U	<0.000300 U
Chromium	SW6020	mg/L	0.05	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U
Lead	SW6020	mg/L	0.1	0.00140	0.00146	N/A	<0.000300 U	<0.000300 U	<0.000300 U
Manganese	SW6020	mg/L	6.1	0.440	0.448	N/A	0.516	0.507	0.486
Selenium	SW6020	mg/L	0.13	<0.00200 U	<0.00200 U	N/A	<0.00200 U	<0.00200 U	<0.00200 U
Silver	SW6020	mg/L	0.05	<0.00100 U	<0.00100 U	N/A	<0.00100 U	<0.00100 U	<0.00100 U
Sodium	SW6020	mg/L	240	102	102	N/A	100	98.3	89.2 J
Mercury	SW7470A	mg/L	0.002	<0.0000800 U	<0.0000800 U	N/A	<0.0000800 U	<0.0000800 U	<0.0000800 U
Endrin	SW8270C	mg/L	0.0002	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Lindane	SW8270C	mg/L	0.004	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U	<0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-D	SW8321B	mg/L	0.1	<0.000100 U	<0.0000989 U	<0.0000997 U	<0.0000991 U	<0.000100 U	<0.000100 U
Silvex	SW8321B	mg/L	0.01	<0.000100 U	<0.0000989 U	<0.0000997 U	<0.0000991 U	<0.000100 U	<0.000100 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	NS	0.0229	0.0506	0.0381	0.0420 J	0.0572 J
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	2.3	0.92	3.3	0 UJL	0 UJL	6.2
Gross Beta	SM900.0	pCi/L	18.8 mg/L	12	12	10	8.0 U	13 J	11.0
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	1.0	1.1	0.77	0.65	0.72	0.68
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.00100 U	<0.00100 U	<0.00100 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
2-Chlorophenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
2-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000500 U	<0.000500 U	<0.000500 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U	<0.000200 U
4-Nitrophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.00100 U	<0.00100 U	<0.00100 U
Pentachlorophenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Phenol	SW8270C	mg/L	NS	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U	<0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7	<0.000200 UX7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P1				MW-P2			
				EUL-WG-P1-050	EUL-WG-P1-063	EUL-WG-P1-070	EUL-WG-P1-080	EUL-WG-P2-050	EUL-WG-P2-060	EUL-WG-P2-070	EUL-WG-P2-080
				2/6/2012	**5/22/2012**	**8/15/2012**	**11/8/2012**	**2/6/2012**	**5/22/2012**	**8/15/2012**	**11/8/2012**
Chloride	E300.0	mg/L	619	57.3	60.1	59.7	62.3	71.1	89.3	124	162
Fluoride	E300.0	mg/L	28.6	0.153 JL	<0.100 UJL	0.101 J	0.200 J	0.147 JL	0.101 JL	< 0.100 UJL	0.172 J
Nitrate-N	E300.0	mg/L	26.6	0.114 J	<0.100 U	<0.100 U	<0.100 U	2.84	0.597	0.495 J	3.44
Sulfate	E300.0	mg/L	266	57.0	59.2	58.8	60.5	14.1	17.0	19	20.4
Total Organic Carbon	SM5310C	mg/L	NS	<0.3 U	2.33	2.58	1.13	<0.3 U	2.98	3.20	0.922 J
Fecal Coliform	SM9222D	cfu/100mL	148.4	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Arsenic	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Barium	SW6020	mg/L	1	0.168	0.156	0.192	0.184	0.0794	0.138	0.119	0.112
Cadmium	SW6020	mg/L	0.06	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	0.000317 J	0.000301 J	0.000395 J
Chromium	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Lead	SW6020	mg/L	0.1	< 0.000300 U	< 0.000300 U	0.000305 J	< 0.000300 U	< 0.000300 U	0.000877 J	0.000378 J	0.000418 J
Manganese	SW6020	mg/L	6.1	0.290	0.392	0.432	0.379	1.52	1.98	2.76	2.63
Selenium	SW6020	mg/L	0.13	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Silver	SW6020	mg/L	0.05	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
Sodium	SW6020	mg/L	240	38.5	38.3	36.8	35.3	71.1	60.5	72.7	84.0
Mercury	SW7470A	mg/L	0.002	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U
Endrin	SW8270C	mg/L	0.0002	<0.0000100	<0.0000100	<0.0000100	<0.0000100	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Lindane	SW8270C	mg/L	0.004	<0.0000100	<0.0000100	<0.0000100	<0.0000100	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	<0.0000100	<0.0000100	<0.0000100	<0.0000100	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	<0.000400	<0.000400	<0.000400	<0.000400	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2,4-D	SW8321B	mg/L	0.1	<0.000100	<0.0000993	<0.0000984	<0.0000989	< 0.0000999 U	< 0.0000986 U	< 0.0000984 U	< 0.0000991 U
Silvex	SW8321B	mg/L	0.01	<0.000100	<0.0000993	<0.0000984	<0.0000989	< 0.0000999 U	< 0.0000986 U	< 0.0000984 U	< 0.0000991 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	NS	0.0324 J	0.0231 J	0.0316	0.0199	0.0422	0.0198	0.0781
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	0.66 JL	2.5	0.15 J	3.1	-0.04 JL	5.5	-0.09 J	0.56
Gross Beta	SM900.0	pCi/L	18.8 mg/L	6.1	6.4	5.5	6.7	3.0	8.7	2.7	5
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	0.50	0.73	0.86	0.67	0.26	0.57	0.62	0.73
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2-Chlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2-Methylphenol	SW8270C	mg/L	NS	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
2-Nitrophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4-Nitrophenol	SW8270C	mg/L	NS	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U
Pentachlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Phenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P3				
				EUL-WG-P3-050	**EUL-WG-P3-060**	**EUL-WG-P3-070**	**EUL-WG-P3-080**	**EUL-WG-P3-081**
				2/6/2012	**5/22/2012**	**8/15/2012**	**11/8/2012**	**11/8/2012**
Chloride	E300.0	mg/L	619	194	238	140	126	125
Fluoride	E300.0	mg/L	28.6	0.131 JL	< 0.100 UJL	0.113 J	0.195 J	0.193 J
Nitrate-N	E300.0	mg/L	26.6	0.543	< 0.100 UJL	<0.100 U	0.228 J	0.221 J
Sulfate	E300.0	mg/L	266	119	182	99.2	85.3	85.4
Total Organic Carbon	SM5310C	mg/L	NS	1.85	4.50	4.29	1.63	1.58
Fecal Coliform	SM9222D	cfu/100mL	148.4	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Arsenic	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Barium	SW6020	mg/L	1	0.112	0.0859	0.0853	0.0924	0.0917
Cadmium	SW6020	mg/L	0.06	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U
Chromium	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Lead	SW6020	mg/L	0.1	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U
Manganese	SW6020	mg/L	6.1	4.85	6.19	4.20	3.34	3.41
Selenium	SW6020	mg/L	0.13	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Silver	SW6020	mg/L	0.05	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
Sodium	SW6020	mg/L	240	135	160	109	96.1	98.4
Mercury	SW7470A	mg/L	0.002	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U
Endrin	SW8270C	mg/L	0.0002	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Lindane	SW8270C	mg/L	0.004	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	< 0.000400 U	0.00220	< 0.000400 U	< 0.000400 U	< 0.000400 U
2,4-D	SW8321B	mg/L	0.1	< 0.0000998 U	< 0.0000996 U	< 0.0000988 U	< 0.0000988 U	< 0.000100 U
Silvex	SW8321B	mg/L	0.01	< 0.0000998 U	< 0.0000996 U	< 0.0000988 U	< 0.0000988 U	< 0.000100 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.0419	0.0717	0.0254	0.0289 J	0.0487 J
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	-1.1 JL	5.1	2.5	-0.83 JL	-0.87 JL
Gross Beta	SM900.0	pCi/L	18.8 mg/L	12	12	7.5	6.9 J	9.6 J
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	0.46	0.69	0.46	0.28	0.38
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2-Chlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2-Methylphenol	SW8270C	mg/L	NS	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
2-Nitrophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4-Nitrophenol	SW8270C	mg/L	NS	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U
Pentachlorophenol	SW8270C	mg/L	NS	< 0.000400 U	**0.00220**	< 0.000400 U	< 0.000400 U	< 0.000400 U
Phenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P4				
				EUL-WG-P4-050	**EUL-WG-P4-060**	**EUL-WG-P4-070**	**EUL-WG-P4-071**	**EUL-WG-P4-080**
				2/6/2012	**5/22/2012**	**8/15/2012**	**8/15/2012**	**11/8/2012**
Chloride	E300.0	mg/L	619	133	110	81.5	82.8	77.5
Fluoride	E300.0	mg/L	28.6	< 0.100 UJL	< 0.100 UJL	< 0.100 U	< 0.100 U	0.184 J
Nitrate-N	E300.0	mg/L	26.6	0.461 J	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U
Sulfate	E300.0	mg/L	266	194	200	124	124	104
Total Organic Carbon	SM5310C	mg/L	NS	4.20	6.07	4.82	4.58	2.38
Fecal Coliform	SM9222D	cfu/100mL	148.4	< 2.0 U	< 2.0 U	< 3.0 U	< 2.0 U	< 2.9 U
Arsenic	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Barium	SW6020	mg/L	1	0.128	0.109	0.120	0.115	0.133
Cadmium	SW6020	mg/L	0.06	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U
Chromium	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Lead	SW6020	mg/L	0.1	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	0.00128 J
Manganese	SW6020	mg/L	6.1	0.851	0.948	0.688	0.679	0.494
Selenium	SW6020	mg/L	0.13	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Silver	SW6020	mg/L	0.05	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
Sodium	SW6020	mg/L	240	144	120	90.9	93.9	92.8
Mercury	SW7470A	mg/L	0.002	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U
Endrin	SW8270C	mg/L	0.0002	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Lindane	SW8270C	mg/L	0.004	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2,4-D	SW8321B	mg/L	0.1	< 0.0000999 U	< 0.0000996 U	< 0.0000983 U	< 0.0000999 U	< 0.000100 U
Silvex	SW8321B	mg/L	0.01	< 0.0000999 U	< 0.0000996 U	< 0.0000983 U	< 0.0000999 U	< 0.000100 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.0340	0.0256	0.0137 J	<0.0100 UJ	0.0289
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	0.83 JL	3.0	1.5 J	0.77 J	-0.26
Gross Beta	SM900.0	pCi/L	18.8 mg/L	4.9	7.6	8.4 J	3.7 J	4.4
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	0.46	0.61	0.71	0.96	0.47
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2-Chlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2-Methylphenol	SW8270C	mg/L	NS	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
2-Nitrophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4-Nitrophenol	SW8270C	mg/L	NS	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U
Pentachlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Phenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P5				
				EUL-WG-P5-050	EUL-WG-P5-060	EUL-WG-P5-061	EUL-WG-P5-073	EUL-WG-P5-080
				2/6/2012	5/22/2012	5/22/2012	8/15/2012	11/8/2012
Chloride	E300.0	mg/L	619	97.3	110	114	142	153
Fluoride	E300.0	mg/L	28.6	0.151 JL	< 0.100 UJL	< 0.100 UJL	< 0.100 UJL	0.179 J
Nitrate-N	E300.0	mg/L	26.6	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 UJL	< 0.100 U
Sulfate	E300.0	mg/L	266	82.4	72.2	72.2	117	103
Total Organic Carbon	SM5310C	mg/L	NS	1.57	3.86	4.17	4.54	2.77
Fecal Coliform	SM9222D	cfu/100mL	148.4	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Arsenic	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Barium	SW6020	mg/L	1	0.0985	0.107	0.108	0.143	0.123
Cadmium	SW6020	mg/L	0.06	< 0.000300 U	< 0.000300 U	< 0.000300 U	0.000507 J	0.000430 J
Chromium	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Lead	SW6020	mg/L	0.1	0.000737 J	0.00100	0.00104	0.00107	0.000842 J
Manganese	SW6020	mg/L	6.1	0.529	0.738	0.750	2.35	2.22
Selenium	SW6020	mg/L	0.13	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Silver	SW6020	mg/L	0.05	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
Sodium	SW6020	mg/L	240	85.9	81.3	80.9	82.6	98.4
Mercury	SW7470A	mg/L	0.002	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U
Endrin	SW8270C	mg/L	0.0002	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Lindane	SW8270C	mg/L	0.004	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2,4-D	SW8321B	mg/L	0.1	< 0.0000991 U	< 0.0000987 U	< 0.0000996 U	< 0.0000995 U	< 0.0000985 U
Silvex	SW8321B	mg/L	0.01	< 0.0000991 U	< 0.0000987 U	< 0.0000996 U	< 0.0000995 U	< 0.0000985 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.0467	0.0519	0.0534	0.0261	0.0683
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	0.64 JL	3.5 J	1.2 J	0.37 J	4
Gross Beta	SM900.0	pCi/L	18.8 mg/L	1.6	4.9	4.2	2.6	3.2
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	0.21	0.31	0.22	0.50	0.39
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2-Chlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2-Methylphenol	SW8270C	mg/L	NS	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
2-Nitrophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4-Nitrophenol	SW8270C	mg/L	NS	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U
Pentachlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Phenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7

Table 3-2. Historical Data (Continued)

Analyte	Method	Units	Concentration Limit	MW-P6			
				EUL-WG-P6-050	EUL-WG-P6-060	EUL-WG-P6-070	EUL-WG-P6-080
				2/6/2012	5/22/2012	8/15/2012	11/8/2012
Chloride	E300.0	mg/L	619	77.2	95.9	91.7	91.5
Fluoride	E300.0	mg/L	28.6	0.190 JL	0.109 JL	0.115 J	0.219 J
Nitrate-N	E300.0	mg/L	26.6	2.92	0.851	< 0.100 U	< 0.100 U
Sulfate	E300.0	mg/L	266	110	128	121	106
Total Organic Carbon	SM5310C	mg/L	NS	2.77	3.95	4.19	2.00
Fecal Coliform	SM9222D	cfu/100mL	148.4	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Arsenic	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Barium	SW6020	mg/L	1	0.152	0.155	0.159	0.154
Cadmium	SW6020	mg/L	0.06	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U
Chromium	SW6020	mg/L	0.05	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Lead	SW6020	mg/L	0.1	< 0.000300 U	0.000439 J	< 0.000300 U	0.000440 J
Manganese	SW6020	mg/L	6.1	0.409	0.458	0.520	0.467
Selenium	SW6020	mg/L	0.13	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Silver	SW6020	mg/L	0.05	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
Sodium	SW6020	mg/L	240	82.8	98.6	93.7	91.0
Mercury	SW7470A	mg/L	0.002	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U
Endrin	SW8270C	mg/L	0.0002	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Lindane	SW8270C	mg/L	0.004	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Methoxychlor	SW8270C	mg/L	0.1	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U	< 0.0000100 U
Toxaphene	SW8270C	mg/L	0.005	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2,4-D	SW8321B	mg/L	0.1	< 0.0000990 U	< 0.000100 U	< 0.0000995 U	< 0.0000990 U
Silvex	SW8321B	mg/L	0.01	< 0.0000990 U	< 0.000100 U	< 0.0000995 U	< 0.0000990 U
Total Organic Halides (TOX)	SW9020B	mg/L	NS	0.0218	0.0425	0.0150	0.0401
Gross Alpha	SM900.0	pCi/L	10.5 mg/L	6.1 JL	-0.77	1.8 J	1.4
Gross Beta	SM900.0	pCi/L	18.8 mg/L	9	10	9.8	9.9
Radium 226 + Alpha Emitting Radium Isotopes	SM903.0	pCi/L	4.1 mg/L	0.72	0.97	0.85	0.69
2,3,4,6-Tetrachlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,5-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4,6-Trichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dimethylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,4-Dinitrophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2,6-Dichlorophenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
2-Chlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
2-Methylphenol	SW8270C	mg/L	NS	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
2-Nitrophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4,6-Dinitro-2-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Chloro-3-methylphenol	SW8270C	mg/L	NS	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U
4-Methylphenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
4-Nitrophenol	SW8270C	mg/L	NS	< 0.000500 U	< 0.000500 U	< 0.000500 U	< 0.000500 U
Pentachlorophenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Phenol	SW8270C	mg/L	NS	< 0.000400 U	< 0.000400 U	< 0.000400 U	< 0.000400 U
Total Phenol (Calculated)	SW8270C	mg/L	NS	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7	< 0.000200 UX7

Table 3-2. Historical Data (Continued)

Concentration Limit: Table VI.B.3.c   Groundwater Detection Monitoring Parameters; Permit No. HW-50361-000; Texas Department of Criminal Justice - Ellis Unit

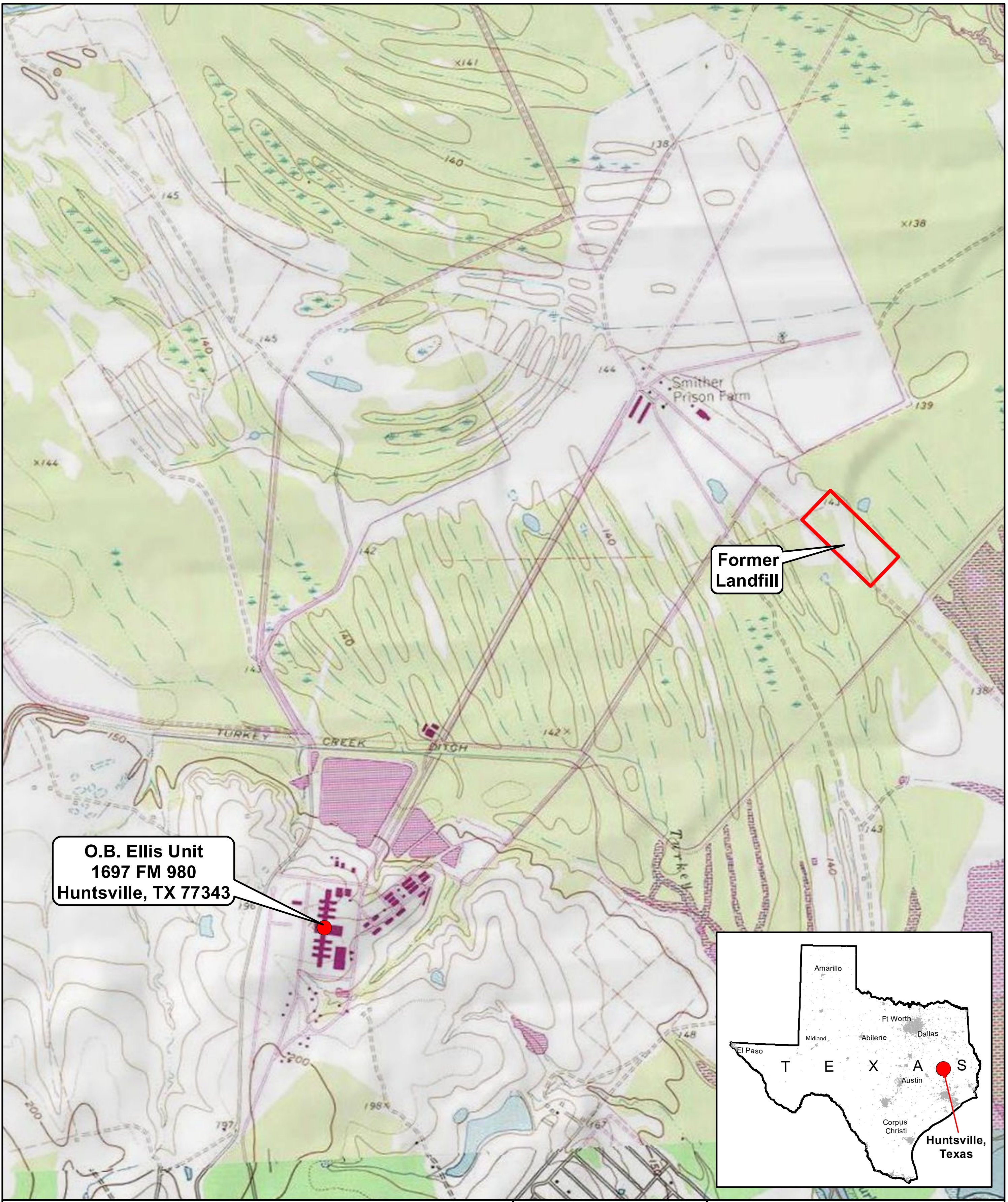
B – Similar to blank concentrations.
cfu – colony forming unit.
J – Estimated.
JL – Estimated result – biased low.
mg/L – milligram per Liter.
NA – Not Applicable.
NS – Not Sampled.
pCi/L – picoCuries per Liter.
U – Not detected.
X7 – Method not certified by State of Texas.

Table 3-3. Analytical Methods, Containers and Holding Times for Samples

Parameter	Method[a]	Volume	Container	Preservative	Holding Time
Metals[b]	SW6020A	500 mL	HDPE bottle	pH<2, HNO_3, 4°C	6 months
Mercury	SW7470A				28 days
Total Organic Carbon	SM5310C	3 x 40 mL	VOA vial	pH<2, H_3PO_4, 4°C	28 days
Total Organic Halides	SW9020B	100 mL	Amber Glass bottle, minimal headspace	pH<2, H_2SO_4, 4°C	28 days
COD	Hach 8000	250 mL	HDPE bottle	pH<2, H_2SO_4, 4°C	28 days
Chloride	E300.0	250 mL	HDPE bottle	None Required	28 days

[a] Analytical method used will be the most recent version of methods approved by NELAP audit for use by the laboratory.
[b] Metals include arsenic, barium, cadmium, chromium, lead, manganese, selenium, and silver.

COD – Chemical Oxygen Demand
SW – Methods for the Determination of Solid Waste
E – Methods for the Analysis of Water and Waste
SM – Standard Methods



N

0 1,000 2,000 4,000
Feet

13460 Briarwick Drive,
Suite 200
Austin, TX 78729
Phone: (512) 454-4797
Fax: (512) 419-5474

Title:
Site Location Map

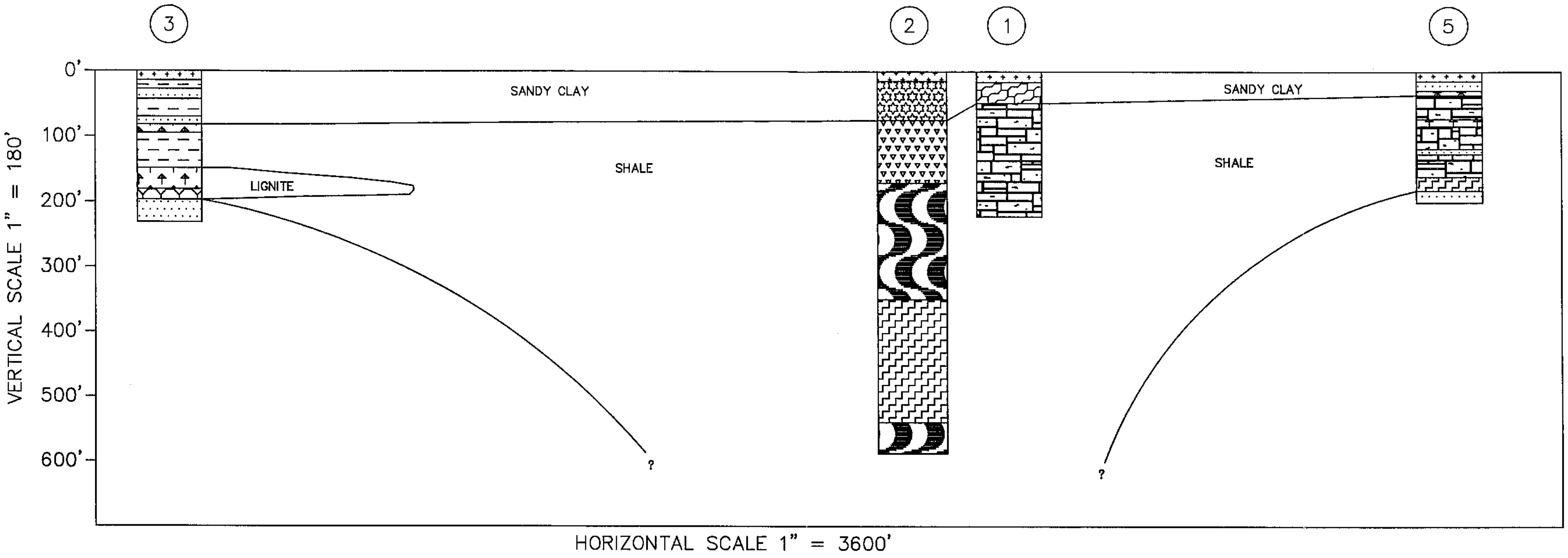
Project: RCRA Renewal HW-50361
Ellis Unit
Huntsville, Texas

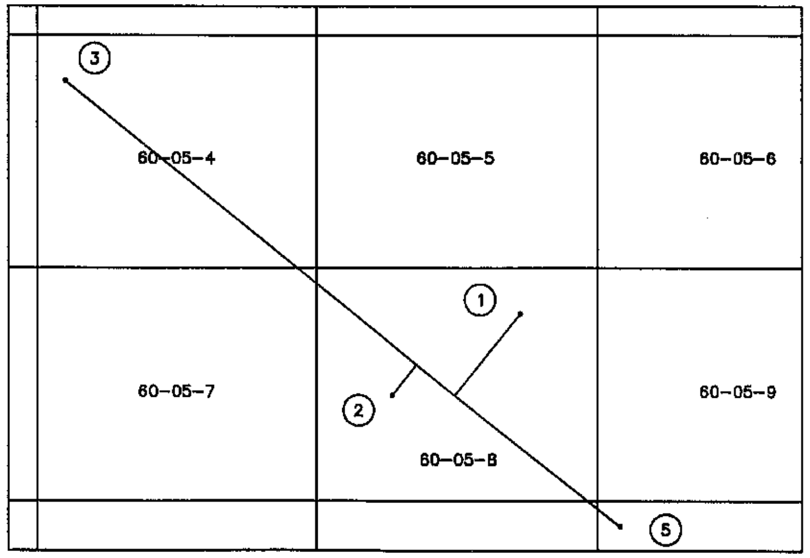
Scale: As Shown	Drawn by: KPL	Date: 7/1/2024	Client: Texas Department of Criminal Justice
	Chk'd by: JST	Date: 7/1/2024	Project No.: 60726186

File Name: Fig 1-1 Site Loc.mxd

Figure: 1-1

Path: \\na.aecomnet.com\lfs\AMER\Austin-USAUS2\DCS\Projects\ENV\TDCJ\TDCJ Ellis\HW Permit Renewal\2024 Renewal\09_GIS\MXD\Fig 1-1 Site Loc.mxd





WELL LOCATION MAP

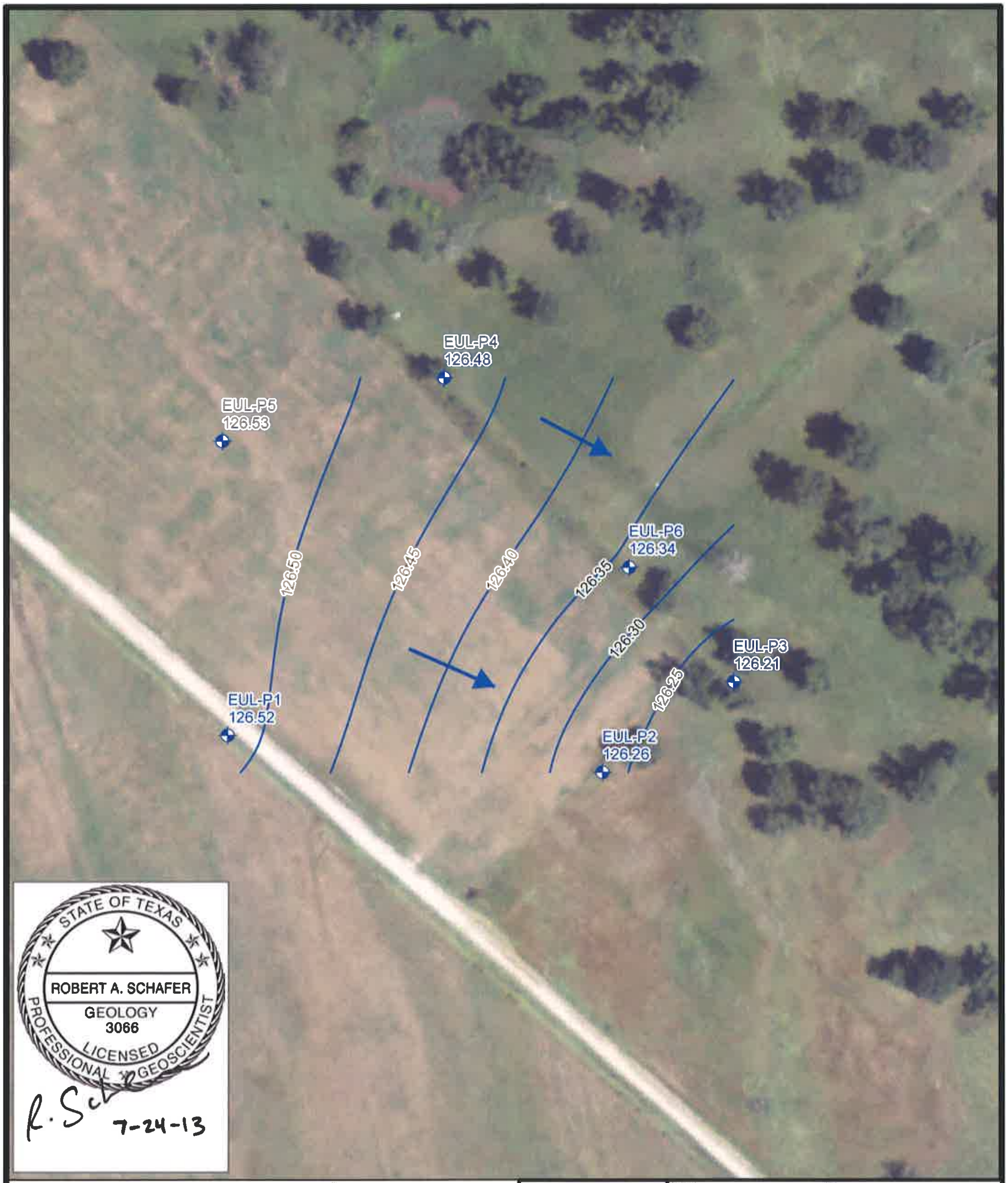
LEGEND

- CLAY
- SAND
- TOP SOIL
- SHALE
- ROCK
- LIGNITE
- HARD SHALE & SAND
- SAND & SHALE
- SHALE & SAND
- SANDY SHALE
- SANDSTONE
- SANDY CLAY

ENVIRONEERING, INC.

FIGURE V1.A.4-2
Stratigraphic Cross Section
Texas Department of Criminal Justice
Ellis I Hazardous Waste Landfill

DWG. BY API	DATE 03/29/02	PROJ. NO. 111-07



STATE OF TEXAS
ROBERT A. SCHAFER
GEOLOGY
3066
LICENSED
PROFESSIONAL GEOSCIENTIST

R. Sch

7-24-13

Legend

URS

9400 Amberglen Blvd.
Austin, TX 78729
Phone: (512) 454-4797
Fax: (512) 419-5474

Client:
Ellis Unit
Texas Department of Criminal Justice
Huntsville, Texas

Report:
--

Potentiometric Surface Map
(February 2013)

Drawn by:	Date:	GIS File:	Figure:
GWC/AUS	7/19/2013	Fig X GWE0213	2-1

Path: K:\PROJECTS\TDCJ\Ellis\Fig X GWE0213.mxd Date: 7/19/2013

Overview Map

Legend

⊕	Ground Water, Active
⊕	Ground Water, Proposed
∿	Groundwater Elevation Contour - Jan 2015
∿	Edge of Pavement/Curb
∿	Fence
∿	Proposed Project Boundary

Basemap

ESRI Streaming Imagery

Proposed Well Location Map

TDCJ Ellis Unit Hazardous Waste Landfill
Huntsville, Walker County, Texas

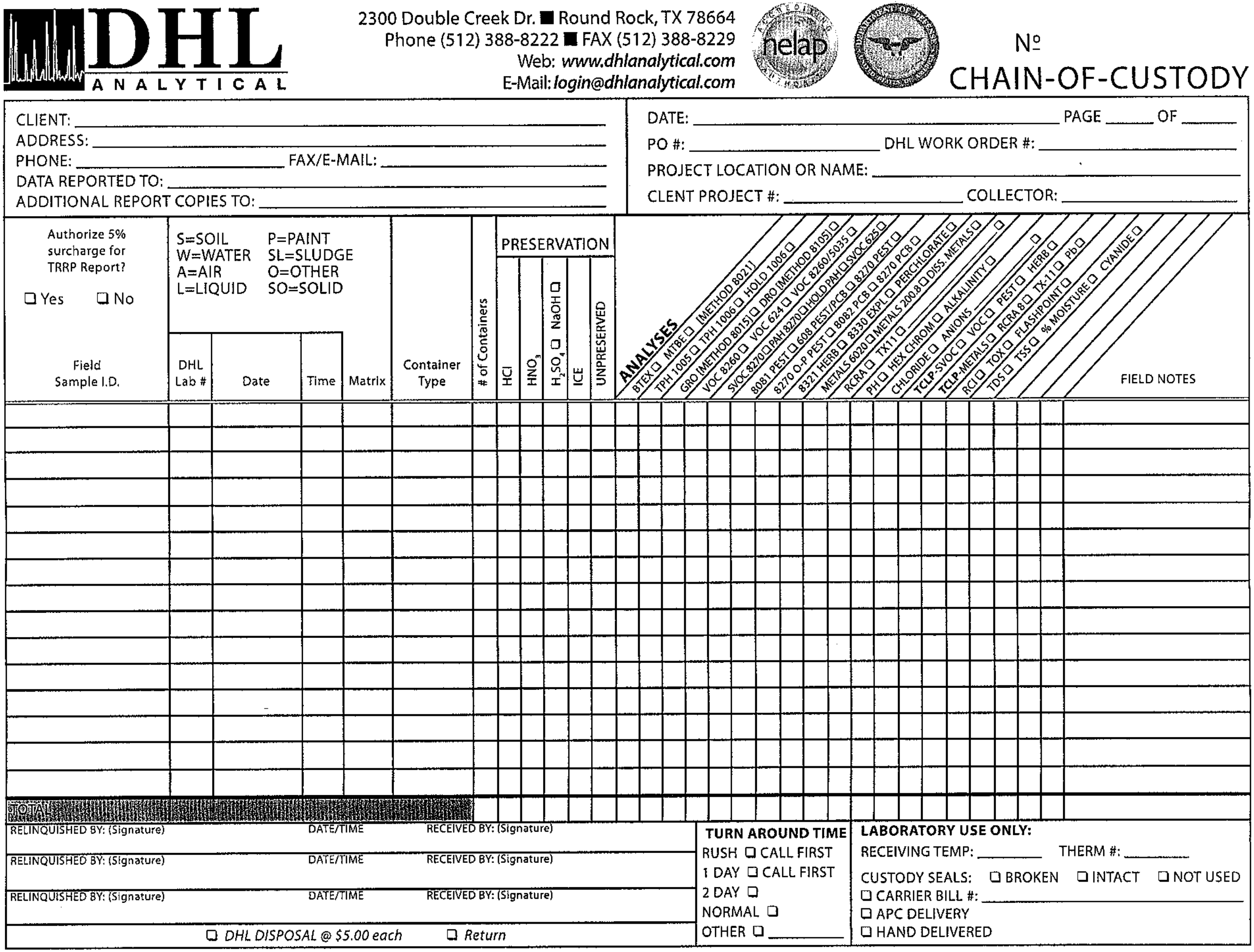
Date: 11/10/2015	Figure 2-2	Drawn: MSD

AECOM

711 N. Caranachua, Suite 1620
Corpus Christi, TX 78401
Phone: (361) 884-7140

www.aecom.com

Metadata: Working version of filename Default.mxd created by M. Dudley on 05/24/2010.



DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: *www.dhlanalytical.com*
E-Mail: *login@dhlanalytical.com*

Nº
CHAIN-OF-CUSTODY

CLIENT: ____________________
ADDRESS: ____________________
PHONE: __________ FAX/E-MAIL: __________
DATA REPORTED TO: ____________________
ADDITIONAL REPORT COPIES TO: ____________________

DATE: ____________________ PAGE ______ OF ______
PO #: __________ DHL WORK ORDER #: __________
PROJECT LOCATION OR NAME: ____________________
CLENT PROJECT #: __________ COLLECTOR: __________

Authorize 5% surcharge for TRRP Report?
☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D. | DHL Lab # | Date | Time | Matrix | Container Type | # of Containers

PRESERVATION
HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES
BTEX ☐ MTBE ☐ (METHOD 8021)
TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐
GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐
VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐
SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐
8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐
8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐
8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐
METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐
RCRA ☐ TX11 ☐ ______ ☐
PH ☐ HEX CHROM ☐ ALKALINITY ☐
CHLORIDE ☐ ANIONS ______ ☐
TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐
TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐
RCI ☐ TOX ☐ FLASHPOINT ☐
TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

FIELD NOTES

TOTAL

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ *DHL DISPOSAL @ $5.00 each* ☐ *Return*

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ ______

LABORATORY USE ONLY:
RECEIVING TEMP: ______ THERM #: ______
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #: ______
☐ APC DELIVERY
☐ HAND DELIVERED

Figure 3-1 Example of Chain of Custody

Sample ID: **Matrix:**
Lab: **Event:** **MS/MSD:**
Log Date: __________ **Log Time:** _________ **Sampler:**
Cont:

Bottle:
Field: None

Figure 3-2 Example Sample Label

APPENDIX A

EMPLOYEE INTERVIEWS

Texas Department of Criminal Justice

Brad Livingston
Executive Director

August 23, 2013

Texas Commission on Environmental Quality
PO Box 13087
Waste Permits Division MC-130
Austin, Texas 78711-3087

Sarah Schreier, P.G.
Project Manager, Industrial & Hazardous Waste Permits Section

Re: Texas Department of Criminal Justice-Ellis Unit Landfill, TCEQ SWR No. 71331, Permit No.:50361, EPA ID No.: TXD980747893, Employee Interview Record

Dear Ms. Schreier:

The Texas Department of Criminal Justice (TDCJ) Environmental Branch is pleased to submit the attached record of employee interviews regarding historical process knowledge of operations at the subject landfill. Hope this information helps you in your review and approval of the analyte list included in Table VI.B.3.c – *Groundwater Detection Monitoring Parameters* found in the permit renewal application.

As evident in the attached report, the Environmental Branch has no indication or any other reason to believe that agricultural chemicals are present as a waste product at the site. Please feel free to contact me if you have any questions or wish to discuss this issue in greater detail.

Sincerely,

Kirk B. Foster
Environmental Branch Manager
Texas Department of Criminal Justice
PO Box 4011
Two Financial Plaza, West Hill Mall Suite 400
Huntsville, Texas 77342-4011

Attachment: As stated

Our mission is to provide public safety, promote positive change in offender behavior, reintegrate offenders into society, and assist victims of crime.

P.O. Box 99
Huntsville, Texas 77342-0099
www.tdcj.state.tx.us

Ellis Landfill - Historical Interview Record

TDCJ Environmental Branch personnel have located and interviewed several individuals with at least some experience and knowledge of activities at the now closed Ellis Landfill. The landfill was covered and no additional waste has been introduced since 1988. Finding individuals with personal knowledge of the operational landfill is complicated by the fact that the landfill has been closed for approximately 25 years.

The Environmental Branch was able to contact two current employees who worked at the Ellis Unit at some point during their career and both have direct knowledge of the site regarding previous operations conducted at the landfill. Both individuals were involved in agricultural and security activities at the landfill location. Names of both individuals and a very brief biographical sketch related to relevant experience and knowledge are included below.

In both cases, the two workers indicated that they had never personally witnessed the disposal of any significant quantities of agricultural chemicals at the landfill. Pesticides and herbicides were considered costly and valuable and were used with great care. Common practice during the 1970's and 1980's was to rinse out containers and place the rinsate back in the sprayer or applicator due to the high cost of these chemicals and the conscientious efforts of individuals working in agriculture operations. Additionally, rinsed and empty containers were rarely disposed of, instead the containers were often used for other purposes (e.g., 55-gallon drums used as shop refuse containers or small 5-gallon plastic jugs were used as secondary containers for fuels to power equipment in the field).

Based on interviews with these individuals and several others with at least some limited knowledge of landfill operations, the Environmental Branch sees no significant issues with regard to the potential for waste disposal of agricultural chemicals at the landfill site.

<u>Mr. Marvin Carter</u>

Worked in Security Operations at the Ellis Unit from 1982 to 1990 and often escorted incarcerated offenders during deliveries of waste refuse from the unit to the landfill. From 1990 to 2001 involved in agriculture security including supervision of offenders working in farming operations. Transferred to Agriculture Department in 2001 as crop production specialist and after a one year retirement in 2011 returned to current position as the Farm Manager at the Ellis Unit.

Interview with Mr. Carter was conducted by Kirk Foster and Larry Kent of the Environmental Branch on August 16, 2013.

<u>Mr. John Fielder</u>

Employed by Agriculture Department in Livestock and Dairy Operations from 1964 to 1984. Worked in various locations within the farming operations including the Ellis Unit throughout this period. Retired in 1984 and was rehired to work in TDCJ Industrial Transportation from 1994 to present.

Interview with Mr. Fielder was conducted by Kirk Foster on August 20, 2013.

APPENDIX B

FARM ANALYTICAL DATA

TEXAS RESEARCH INSTITUTE FOR ENVIRONMENTAL STUDIES

Sam Houston State University
A Member of The Texas State University System

Analytical Report

Client Name: TDCJ-Laura Dean
Client Address: 2 Financial Plaza Ste 410
Huntsville, TX 77340
Log Number: 1029124

Client phone #: (936) 662-7308
Client FAX #:

Date Received: 10/29/2012 **Time Received:** 10:15

Sample Description: **Field East WFO-2"**
Sample ID #: 1029124001 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Buffer pH	7.8	s.u.		MK	12/3/2012	15:15	9045C	
Conductivity	170	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	544	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.36	ppm	0.1	MK/RS	12/12/2012		6010B	**
Ext Iron	105	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	97	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	7.66	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	36	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	158	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	350	ppm	6	MK/RS	12/12/2012		6010B	**
Ext Sulfur	77.3	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	19.1	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	344	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	< 0.60	ppm	0.60	RS	12/10/2012		300.0	N
pH	6.2	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field East WFO-6"** **Date Sampled:** 10/19/2012
Sample ID #: 1029124002 **Matrix** solid **Time Sampled:** 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Buffer pH	7.9	s.u.		MK	12/3/2012	15:15	9045C	
Conductivity	80	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	351	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	1.74	ppm	0.1	MK/RS	12/12/2012		6010B	**
Ext Iron	123	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	61	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	4.95	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	47	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	129	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	351	ppm	6	MK/RS	12/12/2012		6010B	**
Ext Sulfur	74.1	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	21.8	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	122	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	2.42	ppm	0.60	RS	12/10/2012		300.0	N
pH	6.3	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field East WFO-24"**
Sample ID #: 1029124003 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Conductivity	90	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	244	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.74	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	54.8	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	33.7	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	6.5	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	6.11	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	107	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	327	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	61.2	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	15	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	96.6	ppm	0.60	RS	12/10/2012		300.0	N
pH	7.3	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: Field West WFO-2"
Sample ID #: 1029124004 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Buffer pH	7.9	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	160	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	763	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.12	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	103	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	57.1	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	27.5	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	20	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	121	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	390	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	99.2	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	14.8	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	291	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	86.8	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.9	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field West WFO-6"**
Sample ID #: 1029124005 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Buffer pH	8.0	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	90	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	428	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.73	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	61.7	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	41	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	3.66	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	16	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	74	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	312	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	88.5	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	4.65	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	97.2	ppm	0.60	RS	12/10/2012		300.0	N
pH	6.0	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field West WFO-24"**
Sample ID #: 1029124006 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Conductivity	30	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	220	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.53	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	46.5	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	18.6	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	0	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	5.72	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	55	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	282	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	57.5	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	17.4	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	88.8	ppm	0.60	RS	12/10/2012		300.0	N
pH	6.6	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field South FBO-2"**
Sample ID #: 1029124007 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Buffer pH	7.8	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	60	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	542	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	4.77	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	272	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	49.5	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	12.2	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	134	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	57	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	233	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	48.5	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	31.3	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	705	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	89.3	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.7	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field South FBO-6"**
Sample ID #: 1029124008 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Buffer pH	7.9	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	50	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	354	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	3.55	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	164	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	31.1	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	2.71	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	57	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	49	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	252	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	54.7	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	22.3	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	379	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	91.6	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.6	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: Field South FBO-24"
Sample ID #: 1029124009 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Buffer pH	8.0	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	20	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	198	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	3.26	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	86.4	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	21.9	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	0	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	10	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	41	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	265	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	55.9	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	17.7	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	79.2	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.9	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field North FBO-2"**
Sample ID #: 1029124010 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Buffer pH	7.8	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	80	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	294	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.64	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	212	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	28.8	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	12.4	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	49	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	62	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	301	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	69.2	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	20	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	975	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	98.9	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.1	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field North FBO-6"**
Sample ID #: 1029124011 **Matrix** solid

Date Sampled: 10/19/2012
Time Sampled: 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Buffer pH	7.9	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	40	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	281	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	3.73	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	268	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	22.2	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	7.03	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	60	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	51	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	251	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	51.3	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	22.1	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	469	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	115	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.2	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field North FBO-24"** **Date Sampled:** 10/19/2012

Sample ID #: 1029124012 **Matrix** solid **Time Sampled:** 11:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Buffer pH	8.0	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	20	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	221	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.98	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	91.6	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	16.9	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	0	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	6.81	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	45	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	249	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	50.5	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	18.4	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	108	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.5	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field Short Windmill-2"**
Sample ID #: 1029124013 **Matrix** solid

Date Sampled: 10/11/2012
Time Sampled: 10:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Buffer pH	7.8	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	50	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	282	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	3.72	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	187	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	35.3	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	8.73	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	13	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	69	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	271	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	56.8	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	19.1	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	1047	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	92.1	ppm	0.60	RS	12/10/2012		300.0	N
pH	4.9	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field Short Windmill-6"**
Sample ID #: 1029124014 **Matrix** solid

Date Sampled: 10/11/2012
Time Sampled: 10:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Buffer pH	7.9	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	60	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	576	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.87	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	133	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	61.5	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	9.36	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	17	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	87	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	378	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	118	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	11	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	291	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	85.2	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.9	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field Short Windmill-24"** **Date Sampled:** 10/11/2012

Sample ID #: 1029124015 **Matrix** solid **Time Sampled:** 10:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Buffer pH	8.0	s.u.		MK	12/3/2012	15:35	9045C	
Conductivity	30	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	180	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	3.49	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	35.7	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	16.6	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	3.42	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	6.23	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	52	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	280	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	58	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	18.1	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	81.6	ppm	0.60	RS	12/10/2012		300.0	N
pH	5.8	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field Mueller-2"**
Sample ID #: 1029124016 **Matrix** solid

Date Sampled: 10/11/2012
Time Sampled: 10:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data Qualifer
Conductivity	260	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	1783	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	3.97	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	124	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	120	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	4.86	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	28	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	264	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	477	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	83	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	19.6	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	100	ppm	0.60	RS	12/10/2012		300.0	N
pH	7.1	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field Mueller-6"**
Sample ID #: 1029124017 **Matrix** solid

Date Sampled: 10/11/2012
Time Sampled: 10:00

Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ualifer
Conductivity	240	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	1565	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	4.02	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	126	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	106	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	4.69	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	29	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	250	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	477	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	87.6	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	21.2	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	109	ppm	0.60	RS	12/10/2012		300.0	N
pH	7.4	s.u.		MK	12/3/2012	7:55	9045C	

Sample Description: **Field Mueller-24"**
Sample ID #: 1029124018 **Matrix** solid

Date Sampled: 10/11/2012
Time Sampled: 10:00

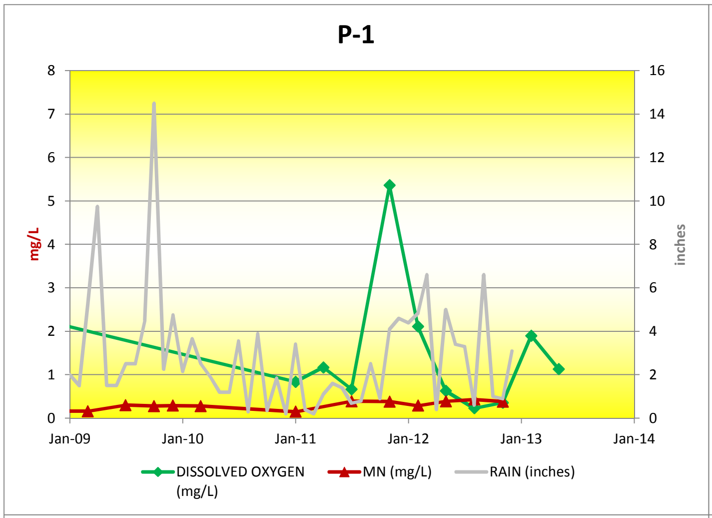
Analysis	Results	Units	LOQ	Analyst	Analysis Date	Analysis Time	Method	Data ꝗualifer
Conductivity	490	uS		MK	12/3/2012	7:55	9050A	
Ext Calcium	1518	ppm	10.0	MK/RS	12/12/2012		6010B	
Ext Copper	2.94	ppm	0.1	MK/RS	12/12/2012		6010B	
Ext Iron	38.7	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Magnesium	212	ppm	3.8	MK/RS	12/12/2012		6010B	
Ext Manganese	0	ppm	2.5	MK/RS	12/12/2012		6010B	
Ext Phosphorus	1.63	ppm	1	MK/RS	12/12/2012		6010B	
Ext Potassium	133	ppm	5	MK/RS	12/12/2012		6010B	
Ext Sodium	916	ppm	6	MK/RS	12/12/2012		6010B	
Ext Sulfur	83.9	ppm	8	MK/RS	12/12/2012		6010B	
Ext Zinc	17.3	ppm	0.3	MK/RS	12/12/2012		6010B	
Lime Requirement	0	lbs ECCE/ac		JH	12/3/2012			
Nitrate-N	179	ppm	0.60	RS	12/10/2012		300.0	N
pH	7.8	s.u.		MK	12/3/2012	7:55	9045C	

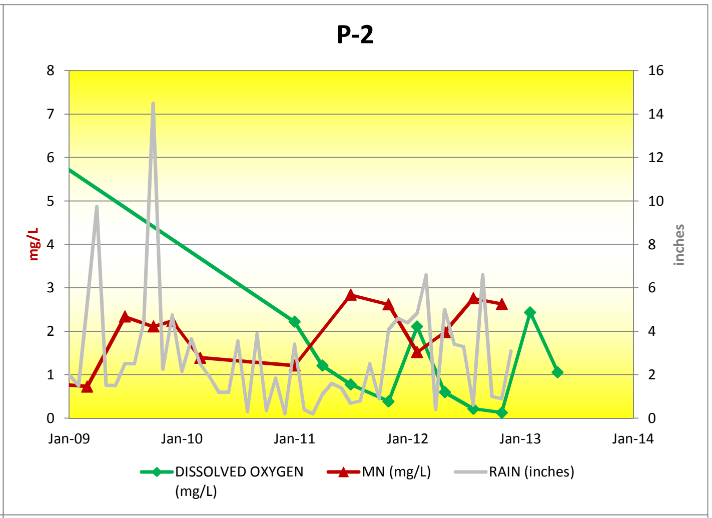
Operations Manager: ______________________ **Date:** ______________

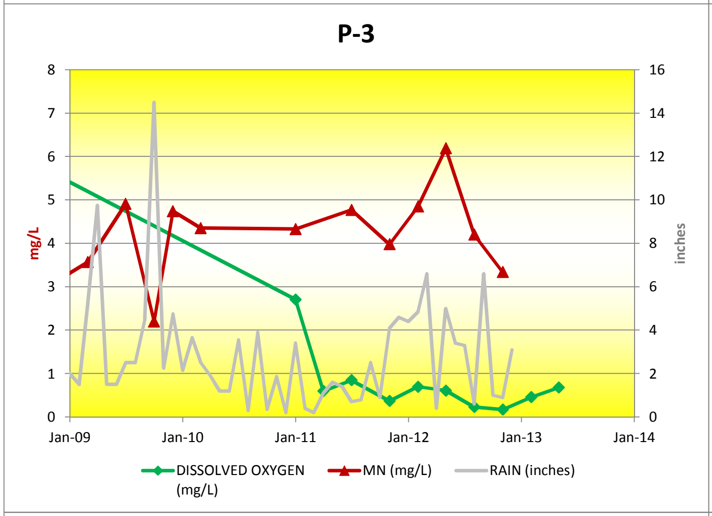
APPENDIX C

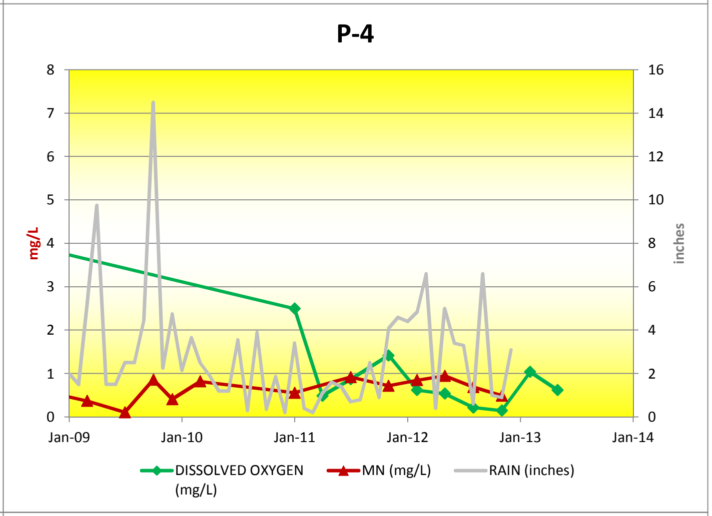
MANGANESE GRAPHS

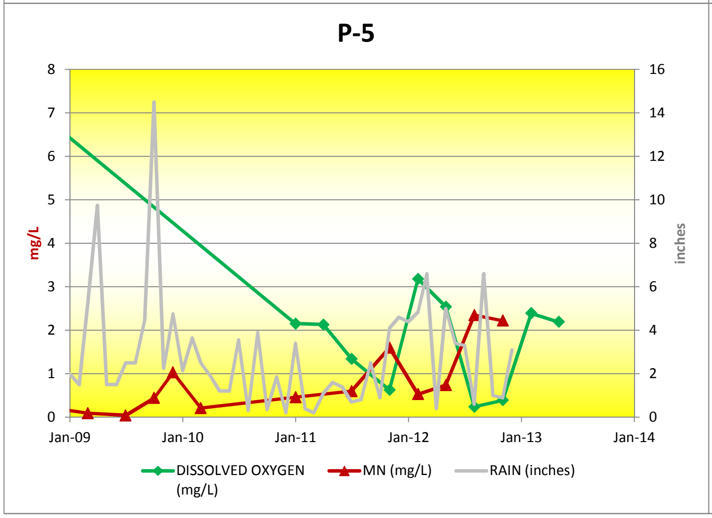
Groundwater Mn and DO Measurements, and Monthly Rainfall - Ellis Landfill, Hazardous Waste Permit 50361

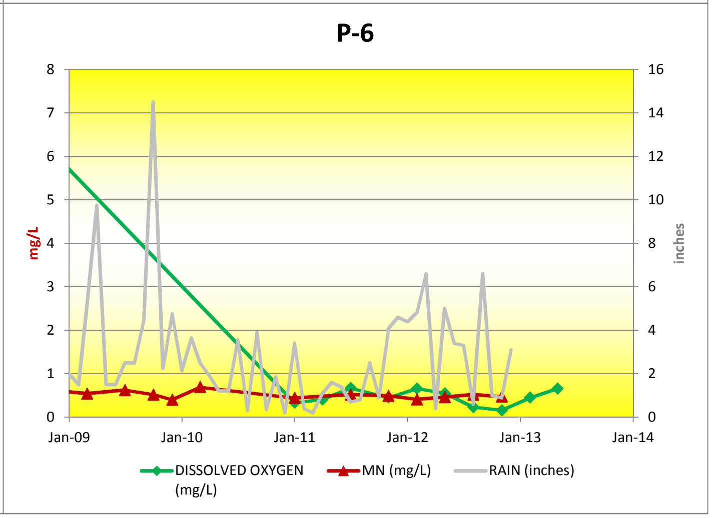












APPENDIX D

TCEQ COMMUNICATION

Youngerman, Jean

From:	Sarah Schreier [redacted]
Sent:	Thursday, September 26, 2013 7:08 AM
To:	Youngerman, Jean
Subject:	RE: Question?

Jean,

We can go with C.2. Yes, you can put it in the application…and probably a copy of this email too. It's likely that I won't remember this conversation in a year.

-ss

From: Youngerman, Jean[redacted]
Sent: Wednesday, September 25, 2013 6:01 PM
To: Sarah Schreier
Subject: Question?

For TDCJ to drop from quarterly to annual sampling – assuming that 12 consecutive quarters with no exceedances or SSIs have past – what kind of modification would they have to complete?

From 30 TAC §305.69(k)
A. General Permit Requirements
  4. Changes in the frequency of or procedures for monitoring, reporting, sampling, or maintenance activities by the permittee:
    a. To provide for more frequent monitoring, reporting, sampling, or maintenance …Class 1
    b. Other changes …. Class 2

or
C. Groundwater Protection
  2. Changes in groundwater sampling or analysis procedures or monitoring schedule, with prior approval of the executive director … Class 1ED.

TDCJ of course would prefer option C.2 over option A.4.b. Can we put any of this in the application? Or do we meet with TCEQ before submitting the modification and get prior approval? Thoughts?

Jean Youngerman
512-419-5208

Please note my new e-mail address: [redacted]

APPENDIX E

MAY 2015 LETTER TO TCEQ

From: Brian Buster
Sent: Thursday, June 18, 2015 1:28 PM
[redacted]
Subject: Follow-Up to May Meeting between TCEQ and TDCJ

Dear Ms. Schreier,

Please find below a summary detailing the meeting with TCEQ, AECOM (formerly URS) and TDCJ that occurred on May 27, 2015, at the TCEQ –Building F, regarding the Hazardous Waste Landfill located at the TDCJ Ellis Unit.

Meeting participants:

TCEQ: Eric Beller and Sarah Schreier;
AECOM: Jean Youngerman;
TDCJ: Larry Kent, Brian Buster, R. Gavin Jones, Nolan Nichols and Tanya Tucker.

Primary scope of meeting:

1. History of monitoring wells,
2. Video assessment of monitoring wells revealed:
    a. Extensive amounts of silting,
    b. Discovery of manual bailers and retrieval ropes were abandoned in place,
    c. High probability that any attempt to recover bailers will result in irreparable damage to well screens,
3. Projected costs associated with plugging and abandoning current 4-inch wells and replacing with 2-inch wells.
    a. Screen depth would be adjusted to reduce the probability of surface water infiltration,
    b. Projected costs being finalized,
4. Relocating the up-gradient monitoring well from a drainage ditch to a more suitable location.
    a. Estimated the distance would be greater than 15eet from current location, necessitating a Class 2 modification to permit.
5. Ropes attached to manual bailers were dedicated and initially tethered to the removable well-plug.
    a. Was determined previous contractors had left bailers *in situ* between quarterly sampling events.
    b. Examination of the manual bailers revealed that the bar used for tethering the retrieval rope to the 3" bailers appeared to be potentially composed from lead amalgam.
    c. Recent data acquired from the first quarterly sampling event of 2015 indicated an exceedance of lead in two monitoring wells. This exceedance can potentially be explained by the unique environmental conditions currently being experienced onsite (infiltration due to the large amounts of rainfall and screen height), and the lead tethering bar on the bailers being present within the wells.
6. At the conclusion of the meeting, all parties in attendance concurred that the monitoring wells were compromised. It was agreed that the most appropriate corrective action TDCJ should

undertake is plug and abandon the existing 4-inch wells and replace with six (6) new 2-inch monitoring wells.

In regards to statistical analysis of data:

An error was discovered in groundwater flow calculations performed by one of the predecessors of AECOM. As a result of this discovery, Ms. Jean Youngerman provided an overview of its significance:

1. Recalculating volumetric flow, using Darcy's equation, revealed that there is flow across the landfill, which would allow for using background and up-gradient well locations for comparison of constituents of concern (COCs), with the only exception being manganese – which requires intra-well comparison.
2. As a result of installing new wells, background COC levels will need to be recalculated.
    a. Eight sampling events are necessary to develop the data set for background levels. Two options were proposed:
        i. Collect eight (8) samples on a quarterly basis over a 2 year period, or
        ii. Obtain four (4) samples each quarter over a year.
    b. TCEQ requested that we perform the first option over a two year period.
3. During the development of new background levels, it was proposed that TDCJ use historical data and historical PCLs to determine if a release from the landfill has occurred. TCEQ agreed to this methodology provided TDCJ performed a trend plot of data.
4. To address the concerns expressed by TCEQ regarding screen level placement, it was agreed that screens would be placed at a level based on the recommendations of the PG and driller during well installation.

Action Items for TDCJ:

1. TDCJ to develop and submit Class 2 modification with proposed well diagrams, proposed well locations, and the updated statistical approach for analyzing data.
2. Following TCEQ approval, current monitoring wells will be plugged and abandoned and new wells will be installed followed by a sampling event.
3. Following installation and sampling, a Class 1 modification will be submitted to TCEQ containing pertinent monitoring well information (georeferenced well locations, screen depth, TOC, etc…). This will also be accompanied with the submission of construction certification of the wells.
4. Ms. Schreier stated that TDCJ had up to 9 months for submitting the Class 1.
5. TCEQ approved TDCJ request that all sampling would be suspended until the new monitoring wells are installed.

Respectfully,

Brian Buster
Environmental Manager

TDCJ - Facilities Division
Project Administration - Environmental Branch
Phone: (936) 437-7247
Fax: (325) 223-0294

APPENDIX F

2016 WELL CONSTRUCTION AND WELL PLUG AND ABANDON FORMS

WELL CONSTRUCTION DETAILS FOR P-1R

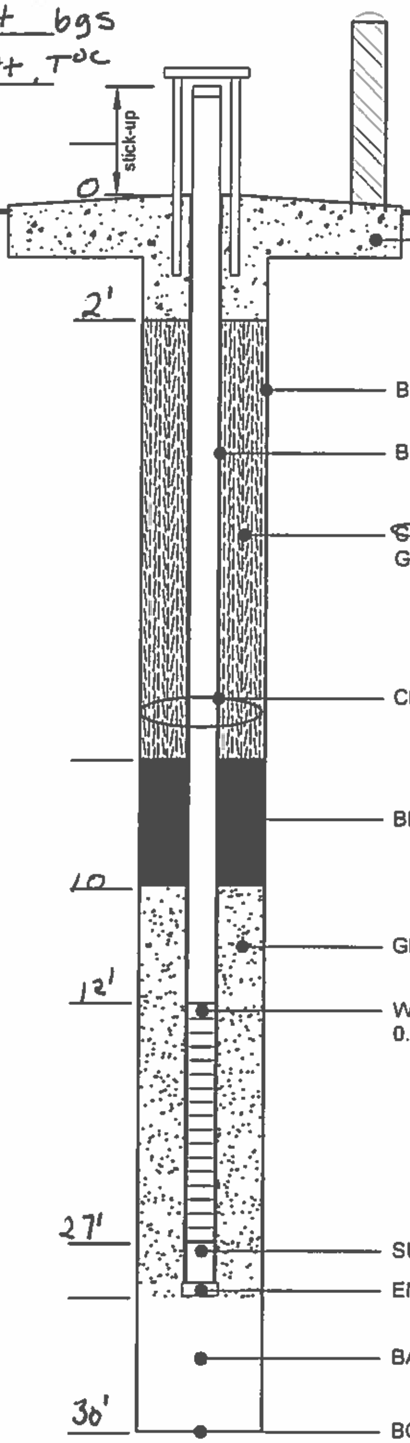
JOB NUMBER 60444955
CLIENT TDCJ
SITE LOCATION Ellis Unit
DRILLING CONTRACTOR Vortex
DRILLER Robert Joiner
LOGGER Elizabeth Colmenares

DATE/TIME STARTED 11-02-16 / 1400
DATE/TIME COMPLETED 11-02-16 / 1500

DEPTH OF WATER ENCOUNTERED DURING DRILLING 12.5 ft bgs
DEPTH OF WATER MEASURED AFTER COMPLETION 13.74 ft, TOC

TYPE OF WELL:
✓ PERMANENT MONITORING WELL
___ TEMPORARY MONITORING WELL
___ OTHER ______

SURFACE COMPLETION:
___ FLUSH-MOUNTED
✓ STICK-UP WITH PROTECTIVE CASING
✓ PIPE BOLLARDS
✓ CONCRETE PAD



CONCRETE PAD - DIMENSIONS 3'x3' x 4"

CONCRETE # OF BAGS ______
[✓ CEMENT] ~~BENTONITE~~ GROUT MIXTURE # OF BAGS 14
BENTONITE CHIPS # OF BAGS 8
FILTER SAND # OF BAGS 15

CONDITIONS / NOTES / ETC...
5' prepack from
22'-27'

BOREHOLE 8.25 DIAMETER inches
BLANK WELL CASING 2" DIAMETER ______
~~CEMENT /~~ BENTONITE GROUT MIXTURE cement 0-2' bgs
CENTRALIZERS INSTALLED ______
BENTONITE CHIP SEAL 2'-10' bgs
GRADED FILTER SAND 10'-22' bgs
WELL SCREEN 0.010" SLOTTED PVC 12'-27' bgs
SUMP OR SILT TRAP ______
END CAP 2"
BACKFILL MATERIAL ______
BOTTOM OF BOREHOLE 30' bgs

File: C:\Users\Susan_Forrest\Documents\Susan\field - Well Construction.dwg Layout: Layout1 User: susan forrest Plotted: Jul 24, 2015 - 2:51pm

WELL CONSTRUCTION DETAILS FOR P-2R

JOB NUMBER 60444955

CLIENT TDCJ

SITE LOCATION Ellis Unit

DRILLING CONTRACTOR Vortex

DRILLER Robert Joiner

LOGGER Elizabeth Colmenares

DATE/TIME STARTED 11-02-16 / 0950

DATE/TIME COMPLETED 11-02-16 / 1110

DEPTH OF WATER ENCOUNTERED DURING DRILLING 10' bgs

DEPTH OF WATER MEASURED AFTER COMPLETION 13.18 TOC

TYPE OF WELL:

✓ PERMANENT MONITORING WELL

___ TEMPORARY MONITORING WELL

___ OTHER ___

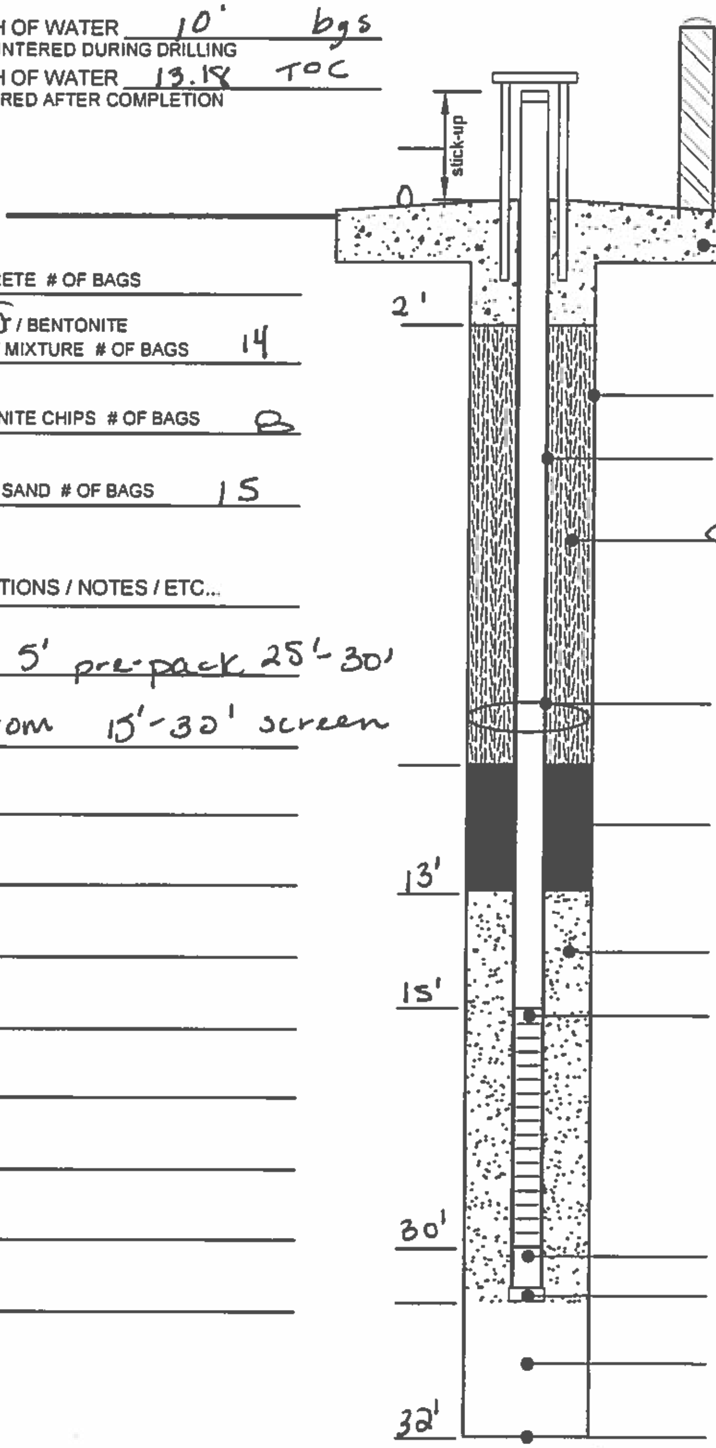
SURFACE COMPLETION:

___ FLUSH-MOUNTED

✓ STICK-UP WITH PROTECTIVE CASING

✓ PIPE BOLLARDS

✓ CONCRETE PAD



GROUND SURFACE

CONCRETE PAD - DIMENSIONS 3'x3'x4''

CONCRETE # OF BAGS ___

[✓ CEMENT] / BENTONITE GROUT MIXTURE # OF BAGS 14

BENTONITE CHIPS # OF BAGS 8

FILTER SAND # OF BAGS 15

CONDITIONS / NOTES / ETC...

5' pre-pack 25'-30'

from 15'-30' screen

BOREHOLE 8 1/4 DIAMETER inches

BLANK WELL CASING 2'' DIAMETER ___

[✓ CEMENT] / BENTONITE GROUT MIXTURE 0-2' bgs

CENTRALIZERS INSTALLED ___

BENTONITE CHIP SEAL 2'-13' bgs

GRADED FILTER SAND 13'-25' bgs

WELL SCREEN 0.010" SLOTTED PVC 15'-30' bgs

SUMP OR SILT TRAP ___

END CAP 2''

BACKFILL MATERIAL ___

BOTTOM OF BOREHOLE TD at 32' bgs

WELL CONSTRUCTION DETAILS FOR P-3R

JOB NUMBER 60444955

CLIENT TDCJ

SITE LOCATION Ellis Unit

DRILLING CONTRACTOR Vortex

DRILLER Robert Joiner

LOGGER Elizabeth Colmenares

DATE/TIME STARTED 11-02-16 / 0830

DATE/TIME COMPLETED 11-02-16 / 0930

DEPTH OF WATER ENCOUNTERED DURING DRILLING 7.5 ft bgs

DEPTH OF WATER MEASURED AFTER COMPLETION 8.88 ft TOC

TYPE OF WEAL:

✓ PERMANENT MONITORING WELL

___ TEMPORARY MONITORING WELL

___ OTHER

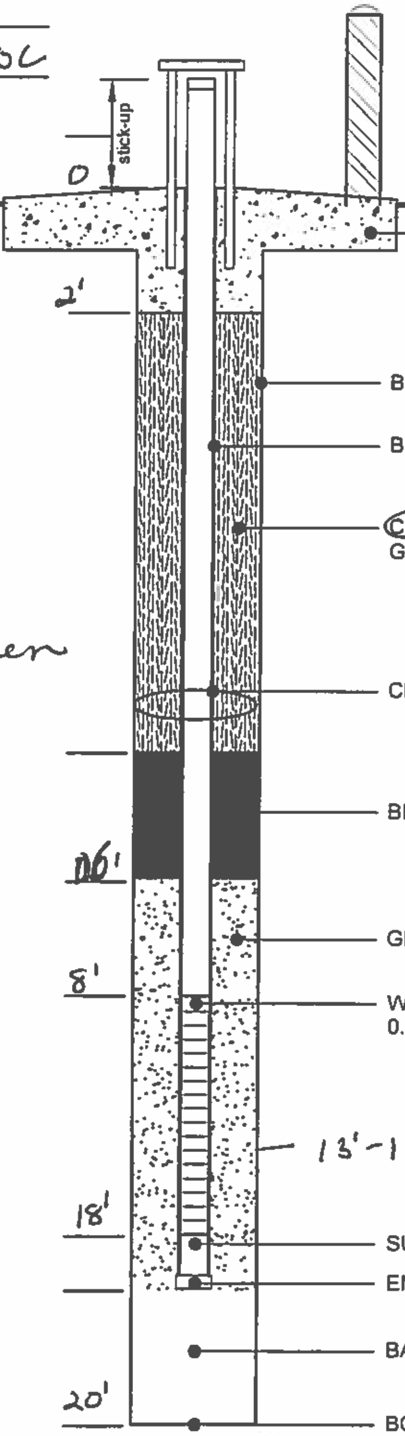
SURFACE COMPLETION:

___ FLUSH-MOUNTED

✓ STICK-UP WITH PROTECTIVE CASING

✓ PIPE BOLLARDS

✓ CONCRETE PAD



GROUND SURFACE

CONCRETE PAD - DIMENSIONS 3'x3' x 4"

CONCRETE # OF BAGS

[✓ CEMENT] / BENTONITE GROUT MIXTURE # OF BAGS 14

BENTONITE CHIPS # OF BAGS 8

FILTER SAND # OF BAGS 10

CONDITIONS / NOTES / ETC...

5' of pre-pack screen
at 13'-18'

BOREHOLE 8.25 DIAMETER inches

BLANK WELL CASING 2" DIAMETER

[✓ CEMENT] / BENTONITE GROUT MIXTURE cement 0-2' bgs

CENTRALIZERS INSTALLED

BENTONITE CHIP SEAL 2'-10' bgs

GRADED FILTER SAND 06'-13' bgs

WELL SCREEN 0.010" SLOTTED PVC 8'-18' bgs

13'-18' pre-pack screen

SUMP OR SILT TRAP

END CAP 2"

BACKFILL MATERIAL

BOTTOM OF BOREHOLE TD at 20' bgs

WELL CONSTRUCTION DETAILS FOR P-4R

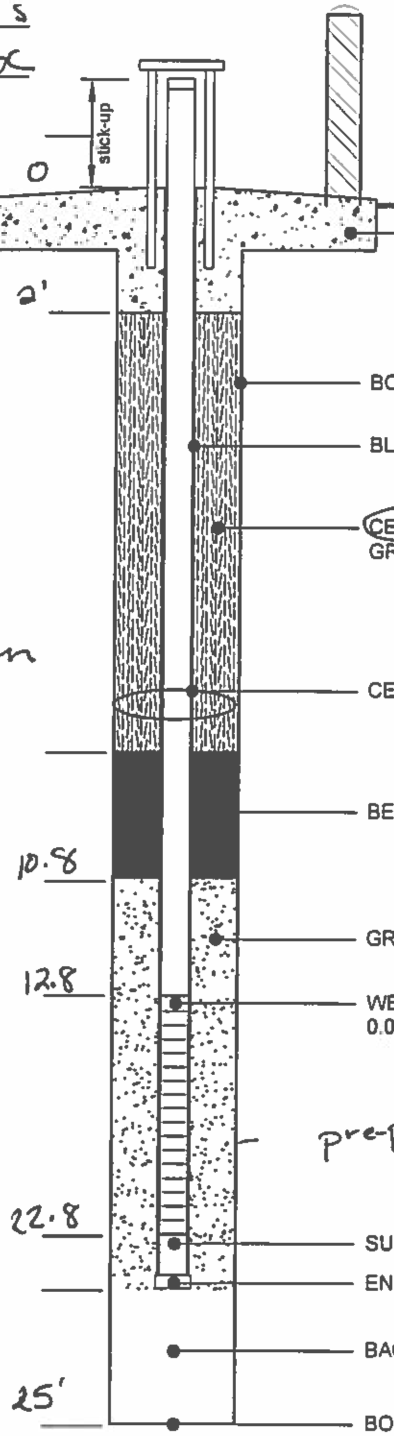
JOB NUMBER 6044955
CLIENT TDCJ
SITE LOCATION Ellis Unit
DRILLING CONTRACTOR Vortex
DRILLER Robert Joiner
LOGGER Elizabeth Colmenares

DATE/TIME STARTED 10-31-16 | 1515
DATE/TIME COMPLETED 10-31-16 | 1720

DEPTH OF WATER ENCOUNTERED DURING DRILLING 7.5 ft bgs
DEPTH OF WATER MEASURED AFTER COMPLETION 8.62 ft TOC

TYPE OF WELL:
✓ PERMANENT MONITORING WELL
___ TEMPORARY MONITORING WELL
___ OTHER ___

SURFACE COMPLETION:
___ FLUSH-MOUNTED
✓ STICK-UP WITH PROTECTIVE CASING
✓ PIPE BOLLARDS
✓ CONCRETE PAD



GROUND SURFACE
CONCRETE PAD - DIMENSIONS 3'x3'x4"

CONCRETE # OF BAGS ___
[✓ CEMENT] / BENTONITE GROUT MIXTURE # OF BAGS 14
BENTONITE CHIPS # OF BAGS 8
FILTER SAND # OF BAGS 15

CONDITIONS / NOTES / ETC...
5' pre-pack screen

BOREHOLE 8 1/4 DIAMETER inches
BLANK WELL CASING 2" DIAMETER ___
[✓ CEMENT] / BENTONITE GROUT MIXTURE 0-2' bgs
CENTRALIZERS INSTALLED ___
BENTONITE CHIP SEAL 2'-10.8 bgs
GRADED FILTER SAND 10.8-17.8 ft bgs
WELL SCREEN 0.010" SLOTTED PVC 12.8-22.8 ft bgs
pre-pack screen 17.8-22.8 ft bgs
SUMP OR SILT TRAP ___
END CAP 2"
BACKFILL MATERIAL ___
BOTTOM OF BOREHOLE TD at 25' bgs

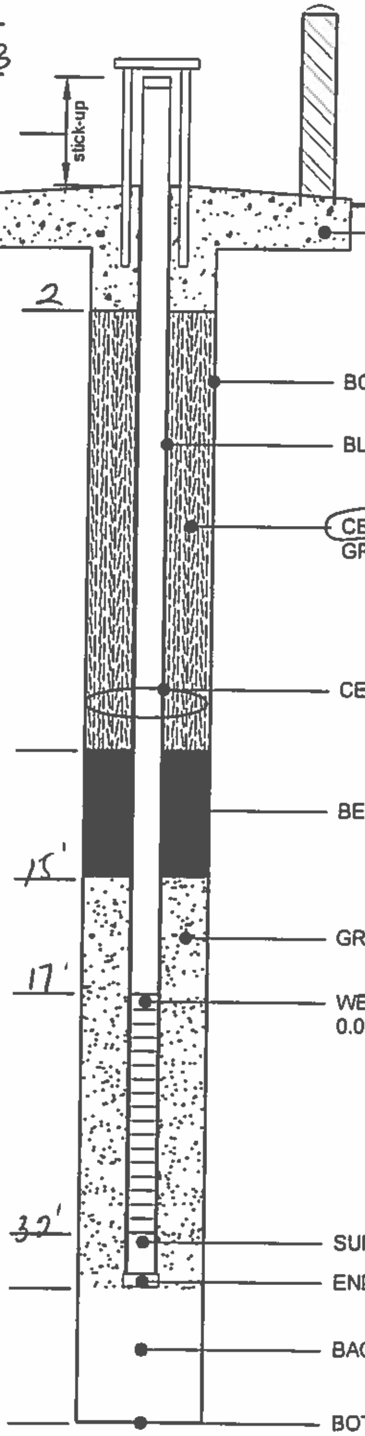
File: C:\Users\Susan_Forrest\Documents\Susan\field - Well Construction.dwg Layout: Layout1 User: susan.forrest Plotted: Jul 24, 2015 - 2:51pm

WELL CONSTRUCTION DETAILS FOR P-5R

JOB NUMBER 60444955
CLIENT TDCJ
SITE LOCATION Ellis Unit
DRILLING CONTRACTOR Vortex
DRILLER Robert Joiner
LOGGER Elizabeth Colmenares
DATE/TIME STARTED 11-02-16 / 1530
DATE/TIME COMPLETED 11-02-16 / 1635
DEPTH OF WATER ENCOUNTERED DURING DRILLING 13'
DEPTH OF WATER MEASURED AFTER COMPLETION TOC = 14.58

TYPE OF WELL:
✓ PERMANENT MONITORING WELL
TEMPORARY MONITORING WELL
OTHER

SURFACE COMPLETION:
FLUSH-MOUNTED
✓ STICK-UP WITH PROTECTIVE CASING
✓ PIPE BOLLARDS
✓ CONCRETE PAD



GROUND SURFACE
CONCRETE PAD - DIMENSIONS 3'X3X4"

CONCRETE # OF BAGS
[✓ CEMENT] ~~BENTONITE~~ GROUT MIXTURE # OF BAGS 14
BENTONITE CHIPS # OF BAGS 8
FILTER SAND # OF BAGS 15

CONDITIONS / NOTES / ETC...
5' pre-pack from
27'-32'

BOREHOLE 825 DIAMETER inches
BLANK WELL CASING 2" DIAMETER
[✓ CEMENT] / BENTONITE GROUT MIXTURE cement 0-2' bgs
CENTRALIZERS INSTALLED
BENTONITE CHIP SEAL 2'-15' bgs
GRADED FILTER SAND 15'-27'
WELL SCREEN 0.010" SLOTTED PVC screen 17'-32
SUMP OR SILT TRAP
END CAP 2"
BACKFILL MATERIAL
BOTTOM OF BOREHOLE TD at 33' bgs

File: C:\Users\Susan_Forrest\Documents\Susan\field - Well Construction.dwg Layout: Layout1 User: susan forrest Plotted: Jul 24, 2015 - 2:51pm

WELL CONSTRUCTION DETAILS FOR P-6R

JOB NUMBER 60444955

CLIENT TDCJ

SITE LOCATION Ellis Unit

DRILLING CONTRACTOR Vortex

DRILLER Robert Joiner

LOGGER Elizabeth Colmenaros

DATE/TIME STARTED 11-01-16 / 0900

DATE/TIME COMPLETED 11-01-16 / 1150

DEPTH OF WATER ENCOUNTERED DURING DRILLING 10'

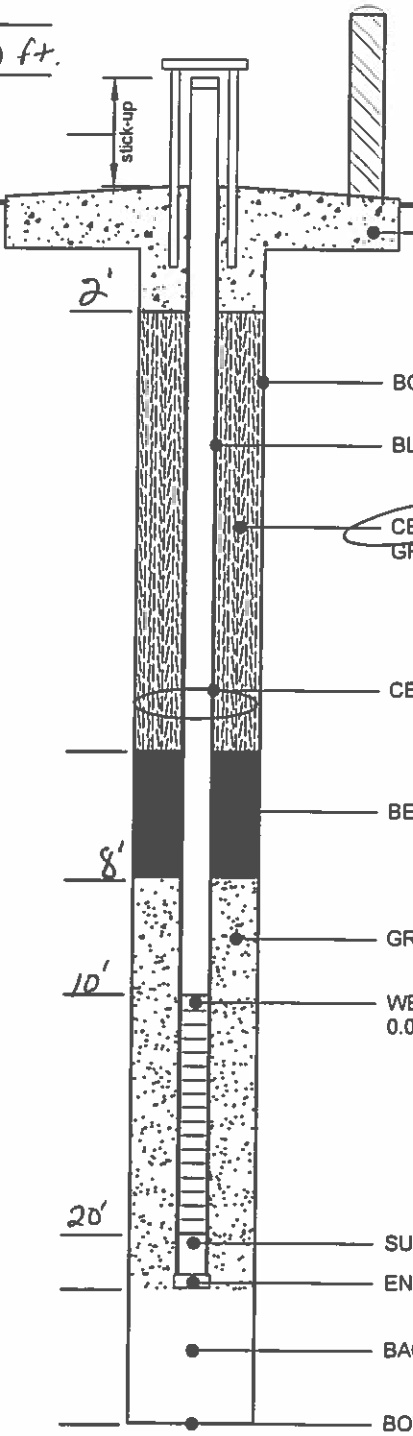
DEPTH OF WATER MEASURED AFTER COMPLETION TOC = 8.30 ft.

TYPE OF WELL:

- ✓ PERMANENT MONITORING WELL
- ☐ TEMPORARY MONITORING WELL
- ☐ OTHER

SURFACE COMPLETION:

- ☐ FLUSH-MOUNTED
- ✓ STICK-UP WITH PROTECTIVE CASING
- ✓ PIPE BOLLARDS
- ✓ CONCRETE PAD



GROUND SURFACE

CONCRETE PAD - DIMENSIONS 3'x3'x4"

CONCRETE # OF BAGS

[✓ CEMENT]/BENTONITE GROUT MIXTURE # OF BAGS 14

BENTONITE CHIPS # OF BAGS 7

FILTER SAND # OF BAGS 15

CONDITIONS / NOTES / ETC...

5' pre-pack at base from 15'-20'

BOREHOLE 8 1/4 DIAMETER

BLANK WELL CASING 2" DIAMETER

[✓ CEMENT]/BENTONITE GROUT MIXTURE 0-2' bgs

CENTRALIZERS INSTALLED

BENTONITE CHIP SEAL 2'-8'

GRADED FILTER SAND 8'-15' bgs

WELL SCREEN 0.010" SLOTTED PVC 10'-20' bgs

SUMP OR SILT TRAP

END CAP 2"

BACKFILL MATERIAL

BOTTOM OF BOREHOLE TD 25' bgs

File: C:\Users\Susan_Forrest\Documents\Susan\field – Well Construction.dwg Layout: Layout1 User: susan forrest Plotted: Jul 24, 2015 – 2:51pm

APPENDIX G

2024 BACKGROUND EVALUATION AND REQUEST TO UPDATE CONCENTRATION LIMITS

AECOM
13640 Briarwick Drive, Suite 200
Austin, TX 78729

May 13, 2024

Our Reference
HW-50361; SWR 71331
EPA ID TX980747893
Tracking No. 25053763
RN102315199/CN601550650

Mr. Charles Brown, Project Manager
I&HW Permits Section
Waste Permits Division
Texas Commission on Environmental Quality
P.O. Box 13087, MC-130
Austin, TX

RE: TDCJ Ellis Unit Hazardous Waste Landfill
2024 Background Evaluation and Request to Update Concentration Limits, Sampling Frequency, and Constituents of Concern
SWR No. 71331; HW Permit No. 50361; EPA ID TX980747893

Dear Mr. Brown,

On behalf of the Texas Department of Criminal Justice (TDCJ), AECOM Technical Services, Inc. (AECOM) has prepared this letter for the TDCJ Ellis Unit Hazardous Waste Landfill (HWL) to propose an update to the baseline statistical data set by incorporating results obtained through 2023 and updating the current concentrations limits (CLs). This request is proposed in accordance with recommendations from U.S. Environmental Protection Agency (EPA) guidance document (EPA 2009), as well as 30 Texas Administrative Code (TAC) §335.163(9)(F) which allows for procedures to control or correct the statistical method for seasonal and spatial variability as well as temporal correlation in the data.

Additionally, based on the results from the statistical analysis performed as part of the CL update, AECOM is proposing an update to groundwater sampling frequency in conjunction with a reduction in the list of constituents of concern (COCs) that are tested during future groundwater monitoring events.

Concentration Limit Update

Background

The monitoring system at the TDCJ Ellis Unit HWL is comprised of six monitoring wells: P-1R, P-2R, P-3R, P-4R, P-5R, and P-6R. The current baseline data set for these wells includes data collected between 2016 and 2021. In 2022 and 2023, eight additional rounds of quarterly data were collected. These data have been evaluated and are considered to be representative of background. A summary of analytical data collected during the proposed updated baseline period is provided in **Table 1**.

For all parameters analyzed during the period proposed to be incorporated into the current baseline data set (2022 and 2023), the following results exceeded the current CL:

Well	Well Type	Constituent	Current CL (mg/L)	Sample Date	Reported Concentration (mg/L)	Date Approved by TCEQ
P-1R	Background	Chloride	81.4	12/12/2022	91.1 JL	Not Applicable[1]
				6/26/2023	86.6 JL	Not Applicable[1]
		TOC	1.82	3/10/2022	2.61	Not Applicable[1]
		TOX	0.0146	12/12/2022	0.0411	Not Applicable[1]
				12/18/2023	0.0225 JH	Not Applicable[1]
P-2R	Point of Compliance (POC)	Chloride	84.3	6/8/2022	90.3	9/28/2022
				12/12/2022	95.0 JL / *93.6 JL	4/18/2023
		TOC	2.81	3/10/2022	3.58 / *3.53	7/7/2022
		TOX	0.0149	6/8/2022	0.0380	9/28/2022
				12/12/2022	0.0374 J / *0.0367 J	4/18/2023
				6/26/2023	0.0161 JL / *0.0422JL	10/30/2023
P-3R	POC	TOC	3.8	3/10/2022	3.88	7/7/2022
P-4R	POC	TOC	3.68	3/10/2022	3.85	7/7/2022
		TOX	0.0159	12/18/2023	0.0266	4/22/2024
P-5R	Background	Chloride	98.1	12/12/2022	104 JL	Not Applicable[1]
		TOC	2.08	3/10/2022	2.59	Not Applicable[1]
		TOX	0.0287	12/12/2022	0.0372	Not Applicable[1]

Symbols:
* - Sample duplicate

Notes:
1). Non-POC, background, wells are located upgradient of landfill waste. Per the facility permit, no further action is required to address CL exceedances at background wells, representative of groundwater upgradient of the landfill.

For each of the CL exceedances identified at POC wells, an alternate source demonstration (ASD) was prepared in accordance with 30 TAC 335.164(7)(F), demonstrating that the CL exceedances are not indicative of a release from the landfill unit. All ASDs have been approved by the TCEQ. As noted above, no further action is required for statistical exceedances identified at background wells P-1R and P-5R, representative of upgradient groundwater.

Statistical Process Used to Evaluate Data

In the Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities – Unified Guidance (EPA 2009)[1], one of the recommended statistics to derive CLs is the estimate of an upper boundary on the upper prediction limit (UPL). To calculate the updated UPL, incorporating new data collected in 2022 and 2023, the statistical distribution (e.g., “normal” distribution) for each baseline data set (i.e., the results for each constituent from each location) was evaluated. The following methodology was used to determine each statistical distribution:

- If there were no non-detects (i.e., 100 percent [%] detected), then the data set was tested for normality using raw data with the Shapiro-Wilk W test (EPA 2006)[2], with a significance level of

---

[1] EPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. EPA 530/R-09-007. Office of Resource Conservation and Recovery. March.

[2] EPA, 2006. Data Quality Assessment: Statistical Methods for Practitioners. EPA QA/G-9S. EPA/240/B-06/003. Washington, DC: Office of Environmental Information. February.

0.05. If the Shapiro-Wilk W test showed no evidence against normality, then the distribution was assumed to be normal and a parametric UPL based on normal distribution was calculated. Otherwise, the normal distribution assumption was rejected, and a non-parametric UPL was calculated.

- If there were non-detect(s) (i.e., not 100% detected), a non-parametric UPL was calculated.
- If there was no detected result (i.e., all baseline samples were non-detects), the practical quantitation limit (PQL) was used as the CL.

The following equation from the EPA Unified Guidance was used for the calculation of a parametric (i.e., normal-based) UPL, at a given sampling location for a given constituent:

> UPL = sample mean + K × sample standard deviation, in which K = a factor selected from (or by using bilinear interpolation of) Table 19-11 in the EPA Unified Guidance.

For the intra-well comparison method, the selection of the factor K requires assumptions about the number of constituents to be monitored, the number of sampling locations, the background sample size, the retesting strategy, and the sampling frequency. **Attachment A** shows the factor K value for each data set where normal-based UPL is used.

Given the current baseline sample size, number of wells, and number of constituents, using Table 19-11 of the Unified Guidance, for an annual site-wide false positive rate of 10%, the power of detection (1-β) is described by the Unified Guidance as “good.” Additional data collected in the future, if added to the baseline data pool, will further increase the statistical power. For parametric UPL, according to Table 19-11 of the Unified Guidance, the minimum background sample size required to achieve sufficient statistical power is 8 to 10, and as noted in **Attachment A**, all well-constituents have reached this minimum sample size.

If a data set could not be assumed to be normally distributed, or if it contained at least one non-detect (but not all samples were non-detects), a non-parametric UPL was calculated. Following the EPA Unified Guidance (Table 19-20), the non-parametric UPL is set to the highest detected concentration. The achieved site-wide false positive rate for the non-parametric UPL depends on the background sample size and the number of intrawell comparisons. Given the current baseline sample size, the target per well-constituent false positive rate ($\alpha_{w\text{-}c}$) is met for an annual sitewide false positive rate of 10%, and the power of detection (1-β) is adequate. The minimum sample size for non-parametric UPL (using the highest detected value) is approximately 25 for this monitoring program. Hence, with the proposed expanded baseline data set and the associated updated CL calculation, both the annual site-wide false positive error (α) of 10% and the desired power of detection (1-β) are satisfied for this monitoring program. Again, as additional samples will be collected, future updating of these background statistics will benefit even more from a larger sample size.

For total organic halides (TOX), because of varying PQLs being reported/used in the historic baseline data sets, the CL should be set equal to the UPL shown in **Attachment A**, or PQL of each future sample result, whichever one is higher.

The results of the Shapiro-Wilk W test, the statistical methods used to calculate the UPL (parametric or non-parametric), and the calculated UPLs are shown in Appendix A for each of the sampling locations/constituents. As noted above, the baseline data set and the associated baseline statistics are proposed to be updated every two to three years. Prior to updating/expanding the baseline data set, all aforementioned statistical evaluation steps will be performed, to ensure that the new data do not drift up over time and mask potential slow releases from the unit. Time series graphs showing historical data trends for detected constituents and box plot graphs showing concentration ranges for each constituent are provided in **Attachment B.**

A comparison of current and proposed CLs for COCs detected above the reporting limit is provided in **Table 2**.

Groundwater Sampling Frequency Update

In accordance with permit revision 6 to Hazardous Waste Permit No. 50361 submitted by TDCJ on June 2016, after 12 successive quarterly events without detections over the TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Protective concentration limit (PCL) or indications of statistically significant Increases (SSIs), a permit update may be submitted to propose a reduction in the sampling frequency. Although TDCJ Ellis is currently in the detection monitoring and post-closure period in accordance with 30 TAC 335.174, analytical concentrations were compared against published PCLs instead of CLs out of an abundance of caution and to ensure that analyte concentrations are protective of human health. As of the first quarter Fiscal Year (FY) 2024 and after 20 or more consecutive sampling events, groundwater monitoring around the TDCJ Ellis Unit HWL has been demonstrated to be indicative of background groundwater and is not impacted by a release from the landfill. CL exceedances identified throughout the monitoring period have been demonstrated to not be indicative of a release from the landfill unit through ASDs, prepared in accordance with 30 TAC 335.164(7)(F) and approved by the TCEQ. Therefore, based on the relative stability of the concentration trends for each COC, AECOM recommends lowering the sampling frequency from a quarterly basis to annually. Currently, the submittal of the permit update is planned for early Q3 FY2024.

COC Update

Information included in the facility Groundwater Monitoring Plan (GMP), submitted as Attachment B.VI to the 2014 hazardous waste permit renewal application, stated that pentachlorophenol (PCP), a common wood preservative, was added as a permitted COC for the HWL in 2014 following a detection of PCP in former monitoring well P-3 in 2012. According to the GMP, field personnel had sampled another site with known PCP contamination just prior to sampling monitoring wells at the TDCJ Ellis Unit HWL and it was suspected that the PCP detection was the result of cross-contamination as PCP treated materials are not a known waste placed in the HWL Unit (see **Attachment C**, Permit Table IV.B.).

It is noted that a former wood preserving area is located at the TDCJ Ellis Unit, approximately 0.6 miles (3,280 feet) northwest of the landfill; however, in a TCEQ letter dated October 4, 2012 (**Attachment D**), no further action was granted to this site in 2012 and the discontinuation of groundwater corrective action was approved.

Based on the information above, it appears that PCP was added as a permitted COC in 2014 out of an overabundance of caution and sampled over the last 7+ years of groundwater monitoring in compliance with the renewed facility permit. During this monitoring period (2016-2023), PCP has not been detected above the reporting limit in any of the landfill monitoring wells.

Given the list of landfill wastes provided in **Attachment C** in conjunction with 7+ years of analytical data showing no PCP detections at any of the landfill monitoring wells, AECOM is requesting the removal of PCP from the list of analytes tested during future landfill groundwater sampling events associated with the Detection Monitoring Program.

If you have questions, please do not hesitate to contact Project Manager, Sandeep Nayyar, at 210-859-1305 ([redacted] or Mackenzie Hirt at 325-456-5320 [redacted]

Sincerely,

AECOM

Sandeep Nayyar, P.E.
Project Manager

Mackenzie Hirt, P.G.
Project Geologist

cc: TCEQ Region 12 Office, Houston
Jason Pierce – TDCJ
AECOM File

Tables

Table 1. Historical COC Analytical Data – P-1R

Analytical Method	Analyte	P-1R														
		Ellis-P1R-Dec2016 12/28/2016	**Ellis-P1R-Dec2016-1 12/28/2016**	**Ellis-P1R-Mar2017 03/27/2017**	**Ellis-P1R-Jun2017 06/20/2017**	**Ellis-P1R-Jun2017-1 06/20/2017**	**Ellis-P1R-Sep2017 09/20/2017**	**Ellis-P1R-Dec2017 01/10/2018**	**Ellis-P1R-Feb2018 02/16/2018**	**Ellis-P1R-Mar2018 03/22/2018**	**Ellis-P1R-Mar2018-1 03/22/2018**	**Ellis-P1R-June2018 06/25/2018**	**Ellis-P1R-Aug2019 08/26/2019**	**Ellis-P1R-Nov2019-3 11/20/2019**	**Ellis-P1R-Mar2020 03/31/2020**	**Ellis-P1R-Jun2020-3 06/22/2020**
EPA 300.0	Chloride	**55.9 JL**	**57.2 JL**	**51.9**	**51.6**	**51.5**	**53.9**	**50.8**	NS	**51.5 JH**	**47.4 JH**	**53.0**	**69.4**	**66.2**	**72.3**	**70.1**
HACH 800	Chemical Oxygen Demand (COD)	<5.00	<5.00	**6.77 J**	<5.00	**7.21 J**	**6.30 J**	<5.00	NS	<5.00	<5.00	<5.00	**10.1 J**	<5.00 U	<5.00 U	**6.55 J**
SM5310C	Total Organic Carbon (TOC)	**1.46**	**1.32**	**1.59**	**1.21**	**1.19**	1.34 U	**1.47**	NS	**1.69**	**1.66**	**1.43**	**1.37**	**1.22**	**1.38**	**1.28**
SW6020A/B	Arsenic	**0.00218 J**	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**0.00224 J**	NS	**0.00265 J**	**0.00242 J**	**0.00376 J**	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Barium	**0.146**	**0.145**	**0.147**	**0.138**	**0.140**	**0.150**	**0.132**	NS	**0.159**	**0.152**	**0.143**	**0.129**	**0.131**	**0.166**	**0.146**
SW6020A/B	Cadmium	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Chromium (total)	<0.00200	**0.00361 J**	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Lead	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Manganese	**0.492**	**0.487**	**0.544**	**0.436**	**0.439**	**0.377**	**0.339**	NS	**0.276**	**0.287**	**0.238**	**0.275**	**0.266**	**0.305**	**0.283**
SW6020A/B	Selenium	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Silver	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NS	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 U	<0.00100 U	<0.00100 U
SW7470A	Mercury	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	NS	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800 U	<0.0000800 U	<0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000382	<0.000381	<0.000386	<0.000392	<0.000395	<0.000395	R	<0.000405	<0.000411	<0.000402	<0.000417	<0.000458	<0.000429 U	<0.000506 U	<0.000477 U
SW9020B	Total Organic Halides (TOX)	R	R	<0.00333	<0.00333	**0.00344 J**	<0.00333	**0.00680 J**	NS	**0.0127**	**0.00508 J**	**0.0146 J**	**0.00874 J**	<0.00333 U	**0.0109**	**0.0122**

Analytical Method	Analyte	P-1R													
		Ellis-P1R-Sept2020 09/21/2020	**Ellis-P1R-Dec2020-3 12/21/2020**	**ELLIS-P1R-Mar2021 3/22/2021**	**ELLIS-P1R-Jun2021 6/29/2021**	**ELLIS-P1R-Sep2021 9/20/2021**	**ELLIS-P1R-Dec2021 12/13/2021**	**ELLIS-P1R-Mar2022 3/10/2022**	**ELLIS-P1R-Jun2022 6/8/2022**	**ELLIS-P1R-Sep2022 9/6/2022**	**ELLIS-P1R-Dec2022 12/12/2022**	**ELLIS-P1R-Mar2023 3/21/2023**	**ELLIS-P1R-Jun2023 6/26/2023**	**ELLIS-P1R-Sep2023 9/12/2023**	**ELLIS-P1R-Dec2023 12/18/2023**
EPA 300.0	Chloride	**77.1**	**66.6**	**75.4**	**81.4**	**78.4**	**78.7**	**76.9**	**81.2**	**72.4**	**91.1 JL**	**80.2**	**86.6 JL**	**77.5 J+**	**62.5**
HACH 800	Chemical Oxygen Demand (COD)	<5.00 U	<5.00 U	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00	**6.24**	< 5.00 U
SM5310C	Total Organic Carbon (TOC)	**1.08 U**	**0.620 J**	**0.668 J**	**1.44**	**1.25**	**1.82**	**2.61**	**0.994 J**	**1.06**	**0.881 J**	**0.967 J**	**0.876 J**	**0.823 J+**	**0.749 J**
SW6020A/B	Arsenic	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Barium	**0.130**	**0.133**	**0.146**	**0.151**	**0.130**	**0.155**	**0.128**	**0.166**	**0.106**	**0.123**	**0.165**	**0.178**	**0.127 J+**	**0.110**
SW6020A/B	Cadmium	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Chromium (total)	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Lead	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	**0.000301 J**	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Manganese	**0.260**	**0.248**	**0.275**	**0.275**	**0.256**	**0.261**	**0.239**	**0.268**	**0.186**	**0.225**	**0.277**	**0.282**	**0.223**	**0.190**
SW6020A/B	Selenium	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Silver	<0.00100 U	<0.00100 U	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100	< 0.00100	< 0.00100 U
SW7470A	Mercury	<0.0000800 U	<0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000433 U	<0.000460 U	< 0.000385	< 0.000477	< 0.000446	< 0.000405	< 0.000441 U	< 0.000463 U	< 0.000397 U	< 0.000449 U	< 0.000417 U	< 0.000421	< 0.000394	< 0.000394 U
SW9020B	Total Organic Halides (TOX)	**0.00410 J**	**0.0116 J**	**0.00768 J**	**0.0146**	**0.00386 J**	**0.00568 J**	**0.0121**	**0.00592 J**	0.273 U	**0.0411**	**0.00832 U**	**0.0120**	**0.00560**	**0.0225 JH**

P-1R is a non-POC upgradient monitor well, located upgradient of landfill waste.

Notes:

[1] Tables VI.B.3.c Concentration Limit, Groundwater Detection Monitoring Parameters; Permit No. HW-50361 September 2, 2014 and amended June 2016; Texas Department of Criminal Justice - Ellis Unit.

Bold - Detected.
COC - Chemical of Concern.
COD - Chemical Oxygen Demand.
mg/L - Milligram per liter.
NS - Not sampled.
PQL - Practical Quantitation Limit.
R - Rejected.
TOC - Total organic carbon.
TOX - Total organic halides.

Data Qualifiers:
J Estimated: The analyte was detected and identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U Not detected: Analysis for the analyte was performed, but the analyte was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).
UJ Not detected, SDL is estimated: The analyte was not detected above the reported SDL. The numerical value of the SDL is estimated and may be inaccurate.
H Bias in sample result likely high.
L Bias in sample result likely low.

Table 1. Historical COC Analytical Data – P-2R

Analytical Method	**Analyte**	**P-2R**													
		Ellis-P2R-Dec2016 12/28/2016	**Ellis-P2R-Mar2017 03/27/2017**	**Ellis-P2R-Jun2017-3 06/20/2017**	**Ellis-P2R-Sep2017 09/20/2017**	**Ellis-P2R-Dec2017 01/10/2018**	**Ellis-P2R-Feb2018 02/16/2018**	**Ellis-P2R-Mar2018 03/22/2018**	**Ellis-P2R-June2018 06/25/2018**	**Ellis-P2R-Aug2019 08/26/2019**	**Ellis-P2R-Nov2019 11/20/2019**	**Ellis-P2R-Nov2019-1 11/20/2019**	**Ellis-P2R-Mar2020 03/31/2020**	**Ellis-P2R-Jun2020 06/22/2020**	**Ellis-P2R-Sept2020 09/21/2020**
EPA 300.0	Chloride	**61.5 JL**	**58.6**	**63.6**	**50.4**	**47.6**	NS	**47.5 JH**	**84.3**	**50.5**	**42.6**	**48.3**	**49.3**	**42.8**	**53**
HACH 800	Chemical Oxygen Demand (COD)	<5.00	<5.00	<5.00	<5.00	<5.00	NS	<5.00	<5.00	**8.87 J**	**6.08 J**	<5.00 U	<5.00 U	**9.02 J**	<5.00 U
SM5310C	Total Organic Carbon (TOC)	**1.89**	**2.17**	**1.70**	1.81 U	**1.97**	NS	**2.27**	**2.31**	**2.05**	**2.25**	**2.21**	**2.43**	**2.31**	**1.51**
SW6020A/B	Arsenic	**0.00225 J**	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	**0.00265 J**	**0.00257 J**	**0.00294 J**	**0.00304 J**	**0.00318 J**	**0.00335 J**	**0.00383 J**
SW6020A/B	Barium	**0.155**	**0.170**	**0.156**	**0.146**	**0.162**	NS	**0.215**	**0.220**	**0.167**	**0.154**	**0.155**	**0.185**	**0.165**	**0.160**
SW6020A/B	Cadmium	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Chromium (total)	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Lead	**0.000316 J**	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Manganese	**0.945**	**0.904**	**1.21**	**0.738**	**0.571**	NS	**0.675**	**1.68**	**1.15**	**0.458**	**0.542**	**0.483**	**0.446**	**0.706**
SW6020A/B	Selenium	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Silver	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NS	<0.00100	<0.00100	<0.00100	<0.00100 U	<0.00100 U	<0.00100 U	<0.00100 U	<0.00100 U
SW7470A	Mercury	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	NS	<0.0000800	<0.0000800	<0.0000800	<0.0000800 U	<0.0000800 U	<0.0000800 U	<0.0000800 U	<0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000386	<0.000381	<0.000396	<0.000386	R	<0.000413	<0.000407	<0.000386	<0.000450	<0.000446 U	<0.000425 U	<0.000512 U	<0.000483 U	<0.000468 U
SW9020B	Total Organic Halides (TOX)	R	**0.00506 J**	**0.00714 J**	**0.00636 J**	**0.00966 J**	NS	**0.0103**	**0.0103 J**	**0.0135**	<0.00333 U	<0.00333 U	**0.00432 J**	**0.00760 J**	**0.00362 J**

Analytical Method	**Analyte**	**P-2R**													
		Ellis-P2R-Dec2020 12/21/2020	**ELLIS-P2R-Mar2021 3/22/2021**	**ELLIS-P2R-Jun2021 6/29/2021**	**ELLIS-P2R-Jun2021-1 6/29/2021**	**ELLIS-P2R-Sep2021 9/20/2021**	**ELLIS-P2R-Dec2021 12/13/2021**	**ELLIS-P2R-Mar2022 3/10/2022**	**ELLIS-P2R-Jun2022 6/8/2022**	**ELLIS-P2R-Sep2022 9/6/2022**	**ELLIS-P2R-Dec2022 12/12/2022**	**ELLIS-P2R-Mar2023 3/21/2023**	**ELLIS-P2R-Mar2023-1 3/21/2023**	**ELLIS-P2R-Jun2023 6/26/2023**	**ELLIS-P2R-Jun2023-1 6/26/2023**
EPA 300.0	Chloride	**42.2**	**75.1**	**50.8**	**47.9**	**69.0**	**54.4**	**84**	**90.3**	**48.1**	**95 JL**	**62.8**	**60.5**	**64.9 JL**	**65.4 JL**
HACH 800	Chemical Oxygen Demand (COD)	**5.85 J**	< 5.00	< 5.00	< 5.00	**7.63 J**	< 5.00	< 5.00 U	< 5.00 U	**7.38 J**	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 UJL	< 5.00 UJL
SM5310C	Total Organic Carbon (TOC)	**1.54**	**1.71**	**2.62**	**2.50**	**2.58**	**2.74**	**3.58**	**1.71**	**1.65**	**1.30**	**1.73**	**1.66**	**1.53 JL**	**1.53 JL**
SW6020A/B	Arsenic	**0.00345 J**	**0.00275 J**	**0.00341 J**	**0.00357 J**	**0.00353 J**	**0.00306 J**	< 0.00200 U	**0.00376 J**	**0.00318 J**	< 0.00200 U	< 0.00200 U	< 0.00200 U	**0.00313 J**	**0.00265 J**
SW6020A/B	Barium	**0.180**	**0.202**	**0.182**	**0.180**	**0.160**	**0.183**	**0.185**	**0.229**	**0.157**	**0.163**	**0.223**	**0.218**	**0.243**	**0.227**
SW6020A/B	Cadmium	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300
SW6020A/B	Chromium (total)	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200
SW6020A/B	Lead	**0.000305 J**	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	**0.0003 J**	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300
SW6020A/B	Manganese	**0.411**	**0.943**	**0.544**	**0.584**	**1.01**	**0.967**	**0.835**	**0.952**	**0.724**	**1.29**	**0.548**	**0.572**	**0.696**	**0.732**
SW6020A/B	Selenium	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200
SW6020A/B	Silver	<0.00100 U	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100	< 0.00100
SW7470A	Mercury	<0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800 U	< 0.0000800 U	< 0.0000800	< 0.0000800
SW8270D/E	Pentachlorophenol	<0.000434 U	< 0.000442	< 0.000447	< 0.000439	< 0.000407	< 0.000425	< 0.000403 U	< 0.000452 U	< 0.000429 U	< 0.000445 U	< 0.000420 U	< 0.000439 U	< 0.000422 UJL	< 0.000449 UJL
SW9020B	Total Organic Halides (TOX)	<0.00333 U	**0.0149**	**0.0163**	**0.00916 J**	**0.0112**	**0.00884 J**	**0.00672 J**	**0.038**	0.601 U	**0.0374 J**	**0.0114 U**	**0.0104 U**	**0.0161 JL**	**0.0422 JL**

Analytical Method	**Analyte**	**P-2R**			
		ELLIS-P2R-Sep2023 9/12/2023	**ELLIS-P2R-Sep2023-1 9/12/2023**	**ELLIS-P2R-Dec2023 12/19/2023**	**ELLIS-P2R-Dec2023-1 12/19/2023**
EPA 300.0	Chloride	**62.2 J+**	**62.7 J+**	**69.8**	**77.0**
HACH 800	Chemical Oxygen Demand (COD)	**7.29**	**9.10**	< 5.00 U	< 5.00 U
SM5310C	Total Organic Carbon (TOC)	**1.40 J+**	**1.42 J+**	**1.46**	**1.35**
SW6020A/B	Arsenic	**0.00234**	**0.00213**	**0.00260 J**	**0.00277 J**
SW6020A/B	Barium	**0.161 J+**	**0.163 J+**	**0.191**	**0.191**
SW6020A/B	Cadmium	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U
SW6020A/B	Chromium (total)	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U
SW6020A/B	Lead	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U
SW6020A/B	Manganese	**1.20**	**1.15**	**0.545**	**0.631**
SW6020A/B	Selenium	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U
SW6020A/B	Silver	< 0.00100	< 0.00100	< 0.00100 U	< 0.00100 U
SW7470A	Mercury	< 0.0000800	< 0.0000800	< 0.0000800 U	< 0.0000800 U
SW8270D/E	Pentachlorophenol	< 0.000392	< 0.000388	< 0.000395 U	< 0.000392 U
SW9020B	Total Organic Halides (TOX)	**0.00882**	**0.00478**	**0.0340**	**0.00622 JH**

Table 1. Historical COC Analytical Data – P-2R (Continued)

Bold - Detected.

COC - Chemical of Concern.
COD - Chemical Oxygen Demand.
mg/L - Milligram per liter.
NS - Not sampled.
PQL - Practical Quantitation Limit.
R - Rejected.
TOC - Total organic carbon.
TOX - Total organic halides.

Data Qualifiers:
J Estimated: The analyte was detected and identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U Not detected: Analysis for the analyte was performed, but the analyte was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).
UJ Not detected, SDL is estimated: The analyte was not detected above the reported SDL. The numerical value of the SDL is estimated and may be inaccurate.
H Bias in sample result likely high.
L Bias in sample result likely low.

Table 1. Historical COC Analytical Data – P-3R

Analytical Method	**Analyte**	**P-3R**												
		Ellis-P3R-Dec2016 12/28/2016	**Ellis-P3R-Mar2017 03/27/2017**	**Ellis-P3R-Mar2017-1 03/27/2017**	**Ellis-P3R-Jun2017 06/20/2017**	**Ellis-P3R-Sep2017 09/20/2017**	**Ellis-P3R-Sep2017-1 09/20/2017**	**Ellis-P3R-Dec2017 01/10/2018**	**Ellis-P3R-Feb2018 02/16/2018**	**Ellis-P3R-MAR2018 03/22/2018**	**Ellis-P3R-June2018 06/25/2018**	**Ellis-P3R-Aug2019 08/26/2019**	**Ellis-P3R-Nov2019 11/20/2019**	**Ellis-P3R-Mar2020 03/31/2020**
EPA 300.0	Chloride	**367 JL**	**350**	**347**	**322**	**313**	**325**	**171**	NS	**288 JH**	**274**	**97.1**	**89.8**	**147**
HACH 800	Chemical Oxygen Demand (COD)	**6.00 J**	**6.74 J**	**7.56 J**	**6.23 J**	**6.90 J**	**7.58 J**	<5.00	NS	**6.78 J**	**5.53 J**	**10.9 J**	<5.00 U	<5.00 U
SM5310C	Total Organic Carbon (TOC)	**3.32**	**3.46**	**3.48**	**3.36**	**3.22**	**3.24**	**3.14**	NS	**3.41**	**3.70**	**3.07**	**2.90**	**3.49**
SW6020A/B	Arsenic	**0.00338 J**	**0.00413 J**	**0.00392 J**	<0.00200	<0.00200	<0.00200	**0.00318 J**	NS	**0.00396 J**	**0.00277 J**	<0.00200	<0.00200 U	**0.00215 J**
SW6020A/B	Barium	**0.187**	**0.196**	**0.193**	**0.190**	**0.182**	**0.183**	**0.157**	NS	**0.130**	**0.207**	**0.134**	**0.124**	**0.117**
SW6020A/B	Cadmium	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U
SW6020A/B	Chromium (total)	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U
SW6020A/B	Lead	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U
SW6020A/B	Manganese	**4.53**	**4.41**	**4.51**	**3.01**	**3.00**	**3.03**	**1.96**	NS	**3.98**	**2.34**	**1.91**	**1.71**	**2.67**
SW6020A/B	Selenium	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U
SW6020A/B	Silver	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NS	<0.00100	<0.00100	<0.00100	<0.00100 U	<0.00100 U
SW7470A	Mercury	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	NS	<0.0000800	<0.0000800	<0.0000800	<0.0000800 U	<0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000388	<0.000379	<0.000379	<0.000448	<0.000385	<0.000400	R	<0.000442	<0.000420	<0.000421	<0.000431	<0.000396 U	<0.000503 U
SW9020B	Total Organic Halides (TOX)	R	**0.0111**	**0.0107**	**0.00928 J**	**0.0106**	**0.00958 J**	**0.0872**	NS	**0.0276**	**0.0420**	**0.0301**	<0.00333 U	**0.0165**

Analytical Method	**Analyte**	**P-3R**														
		Ellis-P3R-Jun2020 06/22/2020	**Ellis-P3R-Sept2020 09/21/2020**	**Ellis-P3R-Dec2020 12/21/2020**	**ELLIS-P3R-MAR2021 3/22/2021**	**ELLIS-P3R-JUN2021 6/29/2021**	**ELLIS-P3R-SEPT2021 9/20/2021**	**ELLIS-P3R-DEC2021 12/13/2021**	**ELLIS-P3R-MAR2022 3/10/2022**	**ELLIS-P3R-JUN2022 6/8/2022**	**ELLIS-P3R-SEP2022 9/6/2022**	**ELLIS-P3R-DEC2022 12/12/2022**	**ELLIS-P3R-MAR2023 3/21/2023**	**ELLIS-P3R-JUN2023 6/26/2023**	**ELLIS-P3R-SEP2023 9/12/2023**	**ELLIS-P3R-DEC2023 12/19/2023**
EPA 300.0	Chloride	**53.0**	**95.2**	**133**	**133**	**121**	**116**	**111**	**114**	**129**	**124**	**193 JL**	**129**	**156 JL**	**91.0 J+**	**150**
HACH 800	Chemical Oxygen Demand (COD)	**7.44 J**	**10.0 J**	<5.00 U	**8.78 J**	**6.49 J**	**10.2 J**	**5.49 J**	< 5.00 U	< 5.00 U	**10.6 J**	< 5.00 U	< 5.00 U	< 5.00 UJL	**13.8**	< 5.00 U
SM5310C	Total Organic Carbon (TOC)	**2.80**	**2.03**	**2.01**	**2.46**	**3.62**	**3.30**	**3.80**	**3.88**	**2.77**	**2.78**	**2.93**	**2.35**	**2.24 JL**	**2.02 J+**	**2.42**
SW6020A/B	Arsenic	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	**0.00410 J**	< 0.00200	< 0.00200	< 0.00200 U	**0.00221 J**	< 0.00200 U	< 0.00200 U	**0.00222 J**	**0.00417 J**	< 0.00200	**0.00301 J**
SW6020A/B	Barium	**0.188**	**0.119**	**0.140**	**0.113**	**0.163**	**0.140**	**0.139**	**0.11**	**0.146**	**0.131**	**0.109**	**0.0942**	**0.165**	**0.113 J+**	**0.149**
SW6020A/B	Cadmium	<0.000300 U	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Chromium (total)	<0.00200 U	**0.00321 J**	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Lead	<0.000300 U	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	**0.000418 J**	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Manganese	**0.805**	**1.95**	**2.68**	**3.06**	**2.34**	**2.37**	**2.51**	**2.78**	**2.51**	**1.91**	**2.45**	**2.90**	**2.14**	**1.68**	**1.98**
SW6020A/B	Selenium	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Silver	<0.00100 U	<0.00100 U	<0.00100 U	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100	< 0.00100	< 0.00100 U
SW7470A	Mercury	<0.0000800 U	<0.0000800 U	<0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000441 U	<0.000428 U	<0.000387 U	< 0.000414	< 0.000424	< 0.000454	< 0.000423	< 0.000416 U	< 0.000442 U	< 0.000419 U	< 0.000443 U	< 0.000404 U	< 0.000423 UJL	< 0.000392	< 0.000400 U
SW9020B	Total Organic Halides (TOX)	**0.0168**	**0.0177**	**0.0204**	**0.0537**	**0.0192**	**0.0105**	**0.0138**	**0.0153**	**0.0285**	0.0225 U	**0.0194**	**0.0350 U**	**0.0152 JL**	< 0.00333	**0.0366**

Bold - Detected.

COC - Chemical of Concern.
COD - Chemical Oxygen Demand.
mg/L - Milligram per liter.
NS - Not sampled.
PQL - Practical Quantitation Limit.
R - Rejected.
TOC - Total organic carbon.
TOX - Total organic halides.

Data Qualifiers:
J Estimated: The analyte was detected and identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U Not detected: Analysis for the analyte was performed, but the analyte was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).
UJ Not detected, SDL is estimated: The analyte was not detected above the reported SDL. The numerical value of the SDL is estimated and may be inaccurate.
H Bias in sample result likely high.
L Bias in sample result likely low.

Table 1. Historical COC Analytical Data – P-4R

Analytical Method	**Analyte**	**P-4R**												
		Ellis-P4R- Dec2016-3 12/28/2016	**Ellis-P4R- Mar2017 03/27/2017**	**Ellis-P4R- Jun2017 06/20/2017**	**Ellis-P4R- Sep2017 09/20/2017**	**Ellis-P4R- Dec2017-3 01/10/2018**	**Ellis-P4R- Feb2018 02/16/2018**	**Ellis-P4R- MAR2018 03/22/2018**	**Ellis-P4R- June2018 06/25/2018**	**Ellis-P4R- Aug2019 08/26/2019**	**Ellis-P4R- Aug2019-1 08/26/2019**	**Ellis-P4R- Nov2019 11/20/2019**	**Ellis-P4R- Mar2020 03/31/2020**	**Ellis-P4R- Mar2020-1 03/31/2020**
EPA 300.0	Chloride	**68.8 JL**	**105**	**80.4**	**111**	**79.8**	NS	**61.6 JH**	**45.5**	**54.9**	**54.9**	**61.4**	**74.1**	**77.2**
HACH 800	Chemical Oxygen Demand (COD)	**5.18 J**	<5.00	<5.00	<5.00	<5.00	NS	**5.89 J**	<5.00	**12.5 J**	**14.6 J**	<5.00 U	<5.00 U	<5.00 U
SM5310C	Total Organic Carbon (TOC)	**3.10**	**3.54**	**2.68**	**2.73**	**2.71**	NS	**2.91**	**2.63**	**2.85**	**2.94**	**2.88**	**2.79**	**2.76**
SW6020A/B	Arsenic	**0.00356 J**	**0.00319 J**	**0.00201 J**	<0.00200	<0.00200	NS	**0.00751**	**0.00213 J**	<0.00200	<0.00200	<0.00200 U	**0.00273 J**	**0.00224 J**
SW6020A/B	Barium	**0.186**	**0.182**	**0.186**	**0.198**	**0.168**	NS	**0.216**	**0.177**	**0.171**	**0.168**	**0.225**	**0.174**	**0.165**
SW6020A/B	Cadmium	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Chromium (total)	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Lead	**0.000448 J**	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Manganese	**1.22**	**1.18**	**0.714**	**0.731**	**0.742**	NS	**0.635**	**0.502**	**0.736**	**0.755**	**0.605**	**1**	**1.02**
SW6020A/B	Selenium	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Silver	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NS	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 U	<0.00100 U	<0.00100 U
SW7470A	Mercury	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	NS	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800 U	<0.0000800 U	<0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000404	<0.000400	<0.000393	<0.000382	R	<0.000409	<0.000428	<0.000413	<0.000468	<0.000467	<0.000451 U	<0.000446 U	<0.000456 U
SW9020B	Total Organic Halides (TOX)	R	<0.00333	**0.0159**	**0.00390 J**	**0.00546 J**	NS	**0.00544 J**	<0.00333	**0.00858 J**	**0.00464 J**	<0.00333 U	**0.00474 J**	**0.00744 J**

Analytical Method	**Analyte**	**P-4R**													
		Ellis-P4R- Jun2020 06/22/2020	**Ellis-P4R- Jun2020-1 06/22/2020**	**Ellis-P4R- Sept2020 09/21/2020**	**Ellis-P4R- Dec2020 12/21/2020**	**ELLIS-P4R- MAR2021 3/22/2021**	**ELLIS-P4R- MAR2021-1 3/22/2021**	**ELLIS-P4R- JUN2021 6/29/2021**	**ELLIS-P4R- SEPT2021 9/20/2021**	**ELLIS-P4R- SEPT2021-1 9/20/2021**	**ELLIS-P4R- DEC2021 12/13/2021**	**ELLIS-P4R- MAR2022 3/10/2022**	**ELLIS-P4R- JUN2022 6/8/2022**	**ELLIS-P4R- SEP2022 9/6/2022**	**ELLIS-P4R- DEC2022 12/12/2022**
EPA 300.0	Chloride	**50**	**51.4**	**53.3**	**76.6**	**65.5**	**64.8**	**69.1**	**49.7**	**50.0**	**50.3**	**45.1**	**53.6**	**68.7**	**69.4 JL**
HACH 800	Chemical Oxygen Demand (COD)	**7.52 J**	**11.0 J**	<5.00 U	<5.00 U	< 5.00	< 5.00	< 5.00	**7.02 J**	**9.11 J**	< 5.00	**5.76 J**	< 5.00 U	**9.46 J**	< 5.00 U
SM5310C	Total Organic Carbon (TOC)	**2.54**	**2.67**	**1.62**	**2.18**	**1.97**	**1.99**	**3.21**	**3.04**	**3.06**	**3.41**	**3.85**	**2.00**	**3.07**	**2.06**
SW6020A/B	Arsenic	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
SW6020A/B	Barium	**0.193**	**0.191**	**0.181**	**0.205**	**0.170**	**0.168**	**0.227**	**0.203**	**0.203**	**0.209**	**0.175**	**0.206**	**0.273**	**0.214**
SW6020A/B	Cadmium	<0.000300 U	<0.000300 U	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U
SW6020A/B	Chromium (total)	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
SW6020A/B	Lead	<0.000300 U	<0.000300 U	<0.000300 U	**0.000387 J**	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U
SW6020A/B	Manganese	**0.535**	**0.538**	**0.521**	**1.22**	**0.777**	**0.812**	**0.629**	**0.642**	**0.667**	**0.752**	**0.788**	**0.671**	**0.709**	**0.641**
SW6020A/B	Selenium	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
SW6020A/B	Silver	<0.00100 U	<0.00100 U	<0.00100 U	<0.00100 U	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U
SW7470A	Mercury	<0.0000800 U	<0.0000800 U	<0.0000800 U	<0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000469 U	<0.000453 U	<0.000432 U	<0.000424 U	< 0.000438	< 0.000417	< 0.000469	< 0.000408	< 0.000397	< 0.000415	< 0.000411 U	< 0.000442 U	< 0.000412 U	< 0.000437 U
SW9020B	Total Organic Halides (TOX)	<0.00333 U	**0.00868 J**	**0.00550 J**	**0.00990 J**	**0.00974 J**	< 0.00333	**0.00954 J**	**0.00988 J**	**0.00554 J**	**0.014**	**0.00482 J**	**0.00968 J**	0.547 U	0.00644 U

Analytical Method	**Analyte**	**P-4R**			
		ELLIS-P4R- MAR2023 3/21/2023	**ELLIS-P4R- JUN2023 6/26/2023**	**ELLIS-P4R- SEP2023 9/12/2023**	**ELLIS-P4R- DEC2023 12/19/2023**
EPA 300.0	Chloride	**67.0**	**53.7 JL**	**51.9 J+**	**66.5**
HACH 800	Chemical Oxygen Demand (COD)	< 5.00 U	< 5.00	**9.46**	**6.69 J**
SM5310C	Total Organic Carbon (TOC)	**2.37**	**2.08**	**2.06 J+**	**2.30**
SW6020A/B	Arsenic	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Barium	**0.249**	**0.275**	**0.221 J+**	**0.295**
SW6020A/B	Cadmium	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Chromium (total)	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Lead	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Manganese	**0.795**	**0.769**	**0.728**	**0.663**
SW6020A/B	Selenium	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Silver	< 0.00100 U	< 0.00100	< 0.00100	< 0.00100 U
SW7470A	Mercury	< 0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800 U
SW8270D/E	Pentachlorophenol	< 0.000430 U	< 0.000415	< 0.000412	< 0.000392 U
SW9020B	Total Organic Halides (TOX)	**0.00432 U**	< 0.00333	< 0.00333	**0.0266**

Table 1. Historical COC Analytical Data – P-4R (Continued)

Bold - Detected.

COC - Chemical of Concern.
COD - Chemical Oxygen Demand.
mg/L - Milligram per liter.
NS - Not sampled.
PQL - Practical Quantitation Limit.
R - Rejected.
TOC - Total organic carbon.
TOX - Total organic halides.

Data Qualifiers:

J	Estimated: The analyte was detected and identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U	Not detected: Analysis for the analyte was performed, but the analyte was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).
UJ	Not detected, SDL is estimated: The analyte was not detected above the reported SDL. The numerical value of the SDL is estimated and may be inaccurate.
H	Bias in sample result likely high.
L	Bias in sample result likely low.

Table 1. Historical COC Analytical Data – P-5R

Analytical Method	Analyte	P-5R												
		Ellis-P5R-Dec2016 12/28/2016	**Ellis-P5R-Mar2017 03/27/2017**	**Ellis-P5R-Jun2017 06/20/2017**	**Ellis-P5R-Sep2017 09/20/2017**	**Ellis-P5R-Dec2017 01/10/2018**	**Ellis-P5R-Dec2017-1 01/10/2018**	**Ellis-P5R-Feb2018 02/16/2018**	**Ellis-P5R-Feb2018-1 02/16/2018**	**Ellis-P5R-Mar2018 03/22/2018**	**Ellis-P5R-June2018 06/25/2018**	**Ellis-P5R-Aug2019 08/26/2019**	**Ellis-P5R-Nov2019 11/20/2019**	**Ellis-P5R-Mar2020 03/31/2020**
EPA 300.0	Chloride	**57.0 JL**	**56.6**	**57.8**	**62.6**	**61.5**	**58.8**	NS	NS	**68.1 JH**	**73.0**	**65.6**	**74.7**	**77.4**
HACH 800	Chemical Oxygen Demand (COD)	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	NS	NS	<5.00	<5.00	**6.89 J**	<5.00 U	<5.00 U
SM5310C	Total Organic Carbon (TOC)	**1.54**	**1.77**	**1.45**	1.37 U	**1.49**	**1.44**	NS	NS	**1.78**	**1.91**	**1.40**	**1.54**	**1.55**
SW6020A/B	Arsenic	**0.00308 J**	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS	**0.00269 J**	**0.00311 J**	<0.00200	<0.00200 U	<0.00200 U
SW6020A/B	Barium	**0.148**	**0.146**	**0.149**	**0.153**	**0.148**	**0.149**	NS	NS	**0.185**	**0.203**	**0.154**	**0.190**	**0.170**
SW6020A/B	Cadmium	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	NS	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U
SW6020A/B	Chromium (total)	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U
SW6020A/B	Lead	**0.00183**	**0.000996 J**	<0.000300	<0.000300	<0.000300	<0.000300	NS	NS	**0.000873 J**	<0.000300	<0.000300	<0.000300 U	<0.000300 U
SW6020A/B	Manganese	**0.727**	**0.797**	**0.441**	**0.588**	**0.417**	**0.433**	NS	NS	**0.520**	**0.519**	**0.576**	**0.507**	**0.770**
SW6020A/B	Selenium	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U
SW6020A/B	Silver	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NS	NS	<0.00100	<0.00100	<0.00100	<0.00100 U	<0.00100 U
SW7470A	Mercury	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	NS	NS	<0.0000800	<0.0000800	<0.0000800	<0.0000800 U	<0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000403	<0.000387	<0.000398	<0.000387	R	R	<0.000412	<0.000402	<0.000390	<0.000427	<0.000470	<0.000430 U	<0.000425 U
SW9020B	Total Organic Halides (TOX)	R	<0.00333	<0.00333	**0.00476 J**	<0.00333J	**0.0171 J**	NS	NS	**0.0152**	**0.00496 J**	**0.0120**	**0.00630 J**	**0.00352 J**

Analytical Method	Analyte	P-5R															
		Ellis-P5R-Jun2020 06/22/2020	**Ellis-P5R-Sept2020 09/21/2020**	**Ellis-P5R-Dec2020 12/21/2020**	**ELLIS-P5R-Mar2021 3/22/2021**	**ELLIS-P5R-Jun2021-3 6/29/2021**	**ELLIS-P5R-Sep2021 9/20/2021**	**ELLIS-P5R-Dec2021-3 12/13/2021**	**ELLIS-P5R-Dec2021-1 12/13/2021**	**ELLIS-P5R-Mar2022 3/10/2022**	**ELLIS-P5R-Jun2022 6/8/2022**	**ELLIS-P5R-Sep2022 9/6/2022**	**ELLIS-P5R-Dec2022 12/12/2022**	**ELLIS-P5R-Mar2023-3 3/21/2023**	**ELLIS-P5R-Jun2023-3 6/26/2023**	**ELLIS-P5R-Sep2023-3 9/12/2023**	**ELLIS-P5R-Dec2023-3 12/19/2023**
EPA 300.0	Chloride	**90.1**	**99.6**	**76.8**	**86.1**	**87.3**	**84.7**	**83.1**	**85.4**	**80.9**	**91.5**	**98.0**	**104 JL**	**87.3**	**90.5 JL**	**89.0 J+**	**84.1**
HACH 800	Chemical Oxygen Demand (COD)	<5.00 U	**5.30 J**	**5.04 J**	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00	**10.6**	< 5.00 U
SM5310C	Total Organic Carbon (TOC)	**1.38**	**0.859 J**	**1.01**	**1.17**	**1.77**	**1.70**	**2.11**	**2.06**	**2.59**	**1.03**	**2.03**	**1.29**	**1.37**	**0.960 J**	**1.10 J+**	**1.37**
SW6020A/B	Arsenic	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Barium	**0.186**	**0.185**	**0.190**	**0.159**	**0.188**	**0.174**	**0.192**	**0.187**	**0.18**	**0.196**	**0.219**	**0.195**	**0.182**	**0.0946**	**0.185 J+**	**0.213**
SW6020A/B	Cadmium	<0.000300 U	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Chromium (total)	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Lead	<0.000300 U	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	**0.000348 J**	< 0.000300	< 0.000300 U
SW6020A/B	Manganese	**0.491**	**0.425**	**0.716**	**0.376**	**0.449**	**0.434**	**0.496**	**0.474**	**0.417**	**0.583**	**0.650**	**0.596**	**0.634**	**0.305**	**0.633**	**0.771**
SW6020A/B	Selenium	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Silver	<0.00100 U	<0.00100 U	<0.00100 U	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100	< 0.00100	< 0.00100 U
SW7470A	Mercury	<0.0000800 U	<0.0000800 U	<0.0000800 U	< 0.0000800	**0.000103 J**	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000494 U	<0.000483 U	<0.000438 U	< 0.000415	< 0.000425	< 0.00045	< 0.000424	< 0.000417	< 0.000421 U	< 0.000457 U	< 0.000402 U	< 0.000473 U	< 0.000420 U	< 0.000434	< 0.000399	< 0.000390 U
SW9020B	Total Organic Halides (TOX)	**0.0133**	**0.0214**	<0.00333 U	**0.0287**	**0.0109**	**0.00802 J**	**0.00803 J**	**0.00646 J**	**0.00694 J**	**0.00722 J**	0.049 U	**0.0372**	**0.00747 U**	**0.0135**	**0.00746**	**0.0115 JH**

Note:
P-5R a is non-POC upgradient monitor well, located upgradient of landfill waste.

Bold - Detected.

COC - Chemical of Concern.
COD - Chemical Oxygen Demand.
mg/L - Milligram per liter.
NS - Not sampled.
PQL - Practical Quantitation Limit.
R - Rejected.
TOC - Total organic carbon.
TOX - Total organic halides.

Data Qualifiers:
J Estimated: The analyte was detected and identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U Not detected: Analysis for the analyte was performed, but the analyte was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).
UJ Not detected, SDL is estimated: The analyte was not detected above the reported SDL. The numerical value of the SDL is estimated and may be inaccurate.
H Bias in sample result likely high.
L Bias in sample result likely low.

Table 1. Historical COC Analytical Data – P-6R

Analytical Method	Analyte	P-6R												
		Ellis-P6R- Dec2016 12/28/2016	**Ellis-P6R- Mar2017 03/27/2017**	**Ellis-P6R- Jun2017 06/20/2017**	**Ellis-P6R- Sep2017 09/20/2017**	**Ellis-P6R- Dec2017 01/10/2018**	**Ellis-P6R- Feb2018 02/16/2018**	**Ellis-P6R- MAR2018 03/22/2018**	**Ellis-P6R- June2018 06/25/2018**	**Ellis-P6R- Aug2019 08/26/2019**	**Ellis-P6R- Nov2019 11/20/2019**	**Ellis-P6R- Mar2020 03/31/2020**	**Ellis-P6R- Jun2020 06/22/2020**	**Ellis-P6R- Sept2020 09/21/2020**
EPA 300.0	Chloride	**87.4 JL**	**71.9**	**68.3**	**68.9**	**65.9**	NS	**73.3 JH**	**75.7**	**68.3**	**47.0**	**58.5**	**92.1**	**55.7**
HACH 800	Chemical Oxygen Demand (COD)	**6.53 J**	**7.22 J**	**6.91 J**	<5.00	<5.00	NS	<5.00	<5.00	**16.0**	<5.00 U	<5.00 U	**7.12 J**	**8.84 J**
SM5310C	Total Organic Carbon (TOC)	**3.07**	**3.48**	**2.82**	2.62 U	**2.76**	NS	**3.10**	**4.86**	**2.86**	**2.83**	**2.94**	**3.01**	**2.05**
SW6020A/B	Arsenic	**0.00314 J**	**0.00258 J**	**0.00248 J**	**0.00241 J**	<0.00200	NS	**0.00319 J**	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Barium	**0.161**	**0.149**	**0.173**	**0.173**	**0.137**	NS	**0.162**	**0.224**	**0.190**	**0.192**	**0.161**	**0.121**	**0.187**
SW6020A/B	Cadmium	<0.000300	<0.000300	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Chromium (total)	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Lead	<0.000300	**0.000305 J**	<0.000300	<0.000300	<0.000300	NS	<0.000300	<0.000300	<0.000300	<0.000300 U	<0.000300 U	<0.000300 U	<0.000300 U
SW6020A/B	Manganese	**0.927**	**0.979**	**0.676**	**0.627**	**0.736**	NS	**0.854**	**0.456**	**0.658**	**0.827**	**0.938**	**2.02**	**0.824**
SW6020A/B	Selenium	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	NS	<0.00200	<0.00200	<0.00200	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U
SW6020A/B	Silver	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NS	<0.00100	<0.00100	<0.00100	<0.00100 U	<0.00100 U	<0.00100 U	<0.00100 U
SW7470A	Mercury	<0.0000800	<0.0000800	<0.0000800	<0.0000800	<0.0000800	NS	<0.0000800	<0.0000800	<0.0000800	<0.0000800 U	<0.0000800 U	<0.0000800 U	<0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000381	<0.000385	<0.000381	<0.000402	R	<0.000429	<0.000408	<0.000427	<0.000462	<0.000435 U	<0.000423 U	<0.000500 U	<0.000455 U
SW9020B	Total Organic Halides (TOX)	R	<0.00333	**0.00572 J**	**0.00372 J**	**0.0564**	NS	**0.00884 J**	**0.00494 J**	**0.00808 J**	<0.00333 U	<0.00333 U	**0.0169**	**0.0170**

Analytical Method	Analyte	P-6R														
		Ellis-P6R- Sept2020-1 09/21/2020	**Ellis-P6R- Dec2020 12/21/2020**	**Ellis-P6R- Dec2020-1 12/21/2020**	**ELLIS-P6R- Mar2021 3/22/2021**	**ELLIS-P6R- Jun2021 6/29/2021**	**ELLIS-P6R- Sep2021 9/20/2021**	**ELLIS-P6R- Dec2021 12/13/2021**	**ELLIS-P6R- Mar2022 3/10/2022**	**ELLIS-P6R- Jun2022 6/8/2022**	**ELLIS-P6R- Sep2022 9/6/2022**	**ELLIS-P6R- Dec2022 12/12/2022**	**ELLIS-P6R- Mar2023 3/21/2023**	**ELLIS-P6R- Jun2023 6/26/2023**	**ELLIS-P6R- Sep2023 9/12/2023**	**ELLIS-P6R- Dec2023 12/19/2023**
EPA 300.0	Chloride	**53.7**	**50.0**	**52.0**	**53.5**	**52.8**	**48.1**	**55.3**	**42.9**	**43.0**	**67.7**	**81.1 JL**	**56.0**	**62.1 JL**	**61.3 J+**	**88.3**
HACH 800	Chemical Oxygen Demand (COD)	**8.28 J**	**5.91 J**	<5.00 U	< 5.00	< 5.00	**8.59 J**	< 5.00	< 5.00 U	< 5.00 U	**6.67 J**	< 5.00 U	< 5.00 U	< 5.00	**11.3**	**9.96 J**
SM5310C	Total Organic Carbon (TOC)	**2.00**	**1.78**	**1.79**	**2.10**	**3.17**	**3.11**	**3.78**	**3.93**	**2.35**	**2.82**	**2.07**	**2.08**	**2.20**	**2.40 J+**	**2.21**
SW6020A/B	Arsenic	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	**0.00257 J**	< 0.00200	**0.00200 J**	< 0.00200 U	**0.00255 J**	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	**0.00200 J**
SW6020A/B	Barium	**0.181**	**0.171**	**0.175**	**0.140**	**0.177**	**0.194**	**0.201**	**0.14**	**0.187**	**0.200**	**0.160**	**0.131**	**0.173**	**0.173 J+**	**0.168**
SW6020A/B	Cadmium	<0.000300 U	<0.000300 U	<0.000300 U	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Chromium (total)	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Lead	<0.000300 U	**0.000359 J**	**0.000325 J**	< 0.000300	< 0.000300	< 0.000300	< 0.000300	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300 U	< 0.000300	< 0.000300	< 0.000300 U
SW6020A/B	Manganese	**0.819**	**1.40**	**1.35**	**1.33**	**0.954**	**0.849**	**1.18**	**1.28**	**1.19**	**0.939**	**1.14**	**1.47**	**1.16**	**1.06**	**1.33**
SW6020A/B	Selenium	<0.00200 U	<0.00200 U	<0.00200 U	< 0.00200	< 0.00200	< 0.00200	< 0.00200	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200	< 0.00200	< 0.00200 U
SW6020A/B	Silver	<0.00100 U	<0.00100 U	<0.00100 U	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100 U	< 0.00100	< 0.00100	< 0.00100 U
SW7470A	Mercury	<0.0000800 U	<0.0000800 U	<0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	< 0.0000800	**0.0000977 J**	< 0.0000800	< 0.0000800 U	< 0.0000800	< 0.0000800	< 0.0000800 U
SW8270D/E	Pentachlorophenol	<0.000443 U	<0.000426 U	<0.000419 U	< 0.000440	< 0.000400	< 0.000442	< 0.000401	< 0.000405 U	< 0.000420 U	< 0.000422 U	< 0.000432 U	< 0.000422 U	< 0.000414	< 0.000391	< 0.000396 U
SW9020B	Total Organic Halides (TOX)	<0.00333 U	<0.00333 U	<0.00333 U	< 0.00333	**0.0127**	**0.00528 J**	**0.00710 J**	**0.00642 J**	< 0.00333 U	0.583 U	0.00918 U	**0.00635 U**	< 0.00333	< 0.00333	**0.0101 JH**

Bold - Detected.

COC - Chemical of Concern.
COD - Chemical Oxygen Demand.
mg/L - Milligram per liter.
NS - Not sampled.
PQL - Practical Quantitation Limit.
R - Rejected.
TOC - Total organic carbon.
TOX - Total organic halides.

Data Qualifiers:
J Estimated: The analyte was detected and identified. The associated numerical value is the approximate concentration of the analyte in the sample.
U Not detected: Analysis for the analyte was performed, but the analyte was not detected above the level of the associated value. The associated value is the sample detection limit (SDL).
UJ Not detected, SDL is estimated: The analyte was not detected above the reported SDL. The numerical value of the SDL is estimated and may be inaccurate.
H Bias in sample result likely high.

L Bias in sample result likely low.

Table 2. Concentration Limit Comparison

Monitoring Well	Constituent	Current CL (mg/L)	Proposed CL (mg/L)	Increase/ Decrease
P-1R	Arsenic	0.05	0.05	No Change
	Barium	1	1	No Change
	Chemical Oxygen Demand (COD)	16	PQL	No Change
	Chloride	89.5	90.8	Increase
	Chromium (total)	0.05	0.05	No Change
	Lead	0.05	0.05	No Change
	Manganese	2.02	0.544	Decrease
	Total Organic Carbon (TOC)	4.29	2.61	Decrease
	Total Organic Halides (TOX)	0.0564	0.0411	No Change
P-2R	Arsenic	0.05	0.05	No Change
	Barium	1	1	No Change
	Chemical Oxygen Demand (COD)	15	PQL	No Change
	Chloride	84.3	94.3	Increase
	Lead	0.05	0.05	No Change
	Manganese	1.45	1.36	Decrease
	Total Organic Carbon (TOC)	2.81	3.56	Increase
	Total Organic Halides (TOX)	0.0149	0.0371	Increase
P-3R	Arsenic	0.05	0.05	No Change
	Barium	1	1	No Change
	Chemical Oxygen Demand (COD)	15	PQL	No Change
	Chloride	367	367	No Change
	Chromium (total)	0.05	0.05	No Change
	Lead	0.05	0.05	No Change
	Manganese	4.51	4.02	Decrease
	Total Organic Carbon (TOC)	3.80	3.98	Increase
	Total Organic Halides (TOX)	0.0872	0.0872	No Change
P-4R	Arsenic	0.05	0.05	No Change
	Barium	1	1	No Change
	Chemical Oxygen Demand (COD)	15	PQL	No Change
	Chloride	104	111	Increase
	Lead	0.05	0.05	No Change
	Manganese	1.22	1.22	No Change
	Total Organic Carbon (TOC)	3.68	3.62	Decrease
	Total Organic Halides (TOX)	0.0159	0.0266	Increase
P-5R	Arsenic	0.05	0.05	No Change
	Barium	1	1	No Change
	Chemical Oxygen Demand (COD)	15	PQL	No Change
	Chloride	98.1	103	Increase
	Lead	0.05	0.05	No Change
	Manganese	0.797	0.780	Decrease
	Mercury	0.002	0.002	No Change
	Total Organic Carbon (TOC)	2.08	2.17	Increase
	Total Organic Halides (TOX)	0.0287	0.0372	Increase

Table 2. Concentration Limit Comparison

Monitoring Well	Constituent	Current CL (mg/L)	Proposed CL (mg/L)	Increase/ Decrease
P-6R	Arsenic	0.05	0.05	No Change
	Barium	1	1	No Change
	Chemical Oxygen Demand (COD)	16	16	No Change
	Chloride	89.5	88.1	Decrease
	Lead	0.05	0.05	No Change
	Manganese	2.02	1.61	Increase
	Mercury	0.002	0.002	No Change
	Total Organic Carbon (TOC)	4.29	4.03	Decrease
	Total Organic Halides (TOX)	0.0564	0.0564	No Change

Attachment A – Intra-well Baseline Statistical Evaluation Results Summary

Attachment A. Intra-well Baseline Statistical Evaluation Results Summary (1 of 2)

						Baseline Summary Statistics								Baseline Sample Date Range		40 CFR Ch. I §264.94	Baseline Data Trend Analysis			Shapiro-Wilk W Test		Upper Prediction Limit (UPL)			
Well	**Constituent**	**Unit**	**No. of Outliers / Earlier Samples Excluded**	**No. of Samples Used**	**Detection Rate**	**Mean**	**Std Dev**	**Min Detected Value**	**Max Detected Value**	**Min MDL of NDs**	**Max MDL of NDs**	**Min PQL of All Samples**	**Max PQL of All Samples**	**First Sample Date**	**Last Sample Date**	**Maximum Concentration Limit (MCL)**	**Mann-Kendall S Statistic**	**p-value**	**Trend Test Result**	**Normality Test p-value**	**Distribution**	***K* -Multiplier**	**UPL with Retesting Strategy**	**Concentration Limit**	**Note**
P1R	Arsenic	mg/L	0	25	16%	0.00127	0.00068	0.00218	0.00376	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P1R	Barium	mg/L	0	25	100%	0.141	0.018	0.106	0.178	-	-	0.01	0.01	12/28/2016	12/18/2023	1								**1**	Use MCL
P1R	Cadmium	mg/L	0	25	0%	-	-	-	-	0.0003	0.0003	0.001	0.001	12/28/2016	12/18/2023	0.01								**0.01**	Use MCL
P1R	Chemical Oxygen Demand (COD)	mg/L	0	25	24%	3.63	2.15	6.24	10.1	5	5	15	15	12/28/2016	12/18/2023	-	-57	0.040	**Downward**	-	-	-	10.1	**PQL**	All baseline data are below PQL
P1R	Chloride	mg/L	0	25	100%	69.2	12.4	49.45	91.1	-	-	1	10	12/28/2016	12/18/2023	-	172	0.000	**Upward**	0.078	Normal	1.74	90.8	**90.8**	Significant upward trend; UPL provisional
P1R	Chromium (total)	mg/L	0	25	4%	0.00110	0.00052	0.00361	0.00361	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P1R	Lead	mg/L	0	25	4%	0.000156	0.000030	0.000301	0.000301	0.0003	0.0003	0.001	0.001	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P1R	Manganese	mg/L	0	25	100%	0.292	0.086	0.186	0.544	-	-	0.003	0.01	12/28/2016	12/18/2023	-	-165	0.000	**Downward**	0.000	Non-parametric	-	0.544	**0.544**	Significant downward trend; UPL provisional
P1R	Mercury	mg/L	0	25	0%	-	-	-	-	0.00008	0.00008	0.0002	0.0002	12/28/2016	12/18/2023	0.002								**0.002**	Use MCL
P1R	Pentachlorophenol	mg/L	0	25	0%	-	-	-	-	0.000381	0.000506	0.00077	0.00101	12/28/2016	12/18/2023	-	-	-	**-**	-	-	-	-	**PQL**	All baseline data are nondetects
P1R	Selenium	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.01								**0.01**	Use MCL
P1R	Silver	mg/L	0	25	0%	-	-	-	-	0.001	0.001	0.002	0.002	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P1R	Total Organic Carbon (TOC)	mg/L	0	25	96%	1.23	0.45	0.62	2.61	1.08	1.08	0.02	1	12/28/2016	12/18/2023	-	-113	0.003	**Downward**	-	-	-	2.61	**2.61**	Significant downward trend; UPL provisional
P1R	Total Organic Halides (TOX)	mg/L	0	24	79%	0.0149	0.0272	0.00344	0.0411	0.00333	0.273	0.01	0.3	3/27/2017	12/18/2023	-	51	0.106	**No Trend**	-	-	-	0.0411	**0.0411**	Use the larger of UPL and PQL
P2R	Arsenic	mg/L	0	25	68%	0.00239	0.00105	0.002235	0.00383	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P2R	Barium	mg/L	0	25	100%	0.180	0.026	0.146	0.235	-	-	0.01	0.01	12/28/2016	12/19/2023	1								**1**	Use MCL
P2R	Cadmium	mg/L	0	25	0%	-	-	-	-	0.0003	0.0003	0.001	0.001	12/28/2016	12/19/2023	0.01								**0.01**	Use MCL
P2R	Chemical Oxygen Demand (COD)	mg/L	0	25	28%	3.92	2.41	5.85	9.02	5	5	15	15	12/28/2016	12/19/2023	-	19	0.297	**No Trend**	-	-	-	9.02	**PQL**	All baseline data are below PQL
P2R	Chloride	mg/L	0	25	100%	60.8	14.9	42.2	94.3	-	-	1	10	12/28/2016	12/19/2023	-	72	0.049	**Upward**	0.033	Non-parametric	-	94.3	**94.3**	Marginal upward trend in baseline
P2R	Chromium (total)	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P2R	Lead	mg/L	0	25	12%	0.000169	0.000052	0.0003	0.000316	0.0003	0.0003	0.001	0.001	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P2R	Manganese	mg/L	0	25	100%	0.830	0.307	0.411	1.68	-	-	0.003	0.01	12/28/2016	12/19/2023	-	-12	0.399	**No Trend**	0.145	Normal	1.74	1.36	**1.36**	
P2R	Mercury	mg/L	0	25	0%	-	-	-	-	0.00008	0.00008	0.0002	0.0002	12/28/2016	12/19/2023	0.002								**0.002**	Use MCL
P2R	Pentachlorophenol	mg/L	0	25	0%	-	-	-	-	0.000381	0.000512	0.000777	0.00102	12/28/2016	12/19/2023	-	-	-	**-**	-	-	-	-	**PQL**	All baseline data are nondetects
P2R	Selenium	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.01								**0.01**	Use MCL
P2R	Silver	mg/L	0	25	0%	-	-	-	-	0.001	0.001	0.002	0.002	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P2R	Total Organic Carbon (TOC)	mg/L	0	25	100%	2.00	0.52	1.305	3.555	-	-	0.02	1	12/28/2016	12/19/2023	-	-53	0.112	**No Trend**	0.049	Non-parametric	-	3.56	**3.56**	
P2R	Total Organic Halides (TOX)	mg/L	0	24	83%	0.0114	0.0088	0.00362	0.03705	0.00333	0.0261	0.01	0.3	3/27/2017	12/19/2023	-	55	0.084	**No Trend**	-	-	-	0.0371	**0.0371**	Use the larger of UPL and PQL
P3R	Arsenic	mg/L	0	25	44%	0.00197	0.00123	0.00215	0.00417	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P3R	Barium	mg/L	0	25	100%	0.146	0.032	0.0942	0.207	-	-	0.01	0.01	12/28/2016	12/19/2023	1								**1**	Use MCL
P3R	Cadmium	mg/L	0	25	0%	-	-	-	-	0.0003	0.0003	0.001	0.001	12/28/2016	12/19/2023	0.01								**0.01**	Use MCL
P3R	Chemical Oxygen Demand (COD)	mg/L	0	25	60%	5.91	3.39	5.49	13.8	5	5	15	15	12/28/2016	12/19/2023	-	-31	0.234	**No Trend**	-	-	-	13.8	**PQL**	All baseline data are below PQL
P3R	Chloride	mg/L	0	25	100%	171	91	53	367	-	-	1	10	12/28/2016	12/19/2023	-	-96	0.013	**Downward**	0.001	Non-parametric	-	367	**367**	Marginal downward trend in baseline
P3R	Chromium (total)	mg/L	0	25	4%	0.00109	0.00044	0.00321	0.00321	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P3R	Lead	mg/L	0	25	4%	0.000161	0.000054	0.000418	0.000418	0.0003	0.0003	0.001	0.001	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P3R	Manganese	mg/L	0	25	100%	2.55	0.85	0.805	4.53	-	-	0.003	0.1	12/28/2016	12/19/2023	-	-81	0.031	**Downward**	0.057	Normal	1.74	4.02	**4.02**	Marginal downward trend in baseline
P3R	Mercury	mg/L	0	25	0%	-	-	-	-	0.00008	0.00008	0.0002	0.0002	12/28/2016	12/19/2023	0.002								**0.002**	Use MCL
P3R	Pentachlorophenol	mg/L	0	25	0%	-	-	-	-	0.000379	0.000503	0.000775	0.00101	12/28/2016	12/19/2023	-	-	-	**-**	-	-	-	-	**PQL**	All baseline data are nondetects
P3R	Selenium	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.01								**0.01**	Use MCL
P3R	Silver	mg/L	0	25	0%	-	-	-	-	0.001	0.001	0.002	0.002	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P3R	Total Organic Carbon (TOC)	mg/L	0	25	100%	2.98	0.58	2.01	3.88	-	-	0.02	1	12/28/2016	12/19/2023	-	-100	0.010	**Downward**	0.215	Normal	1.74	3.98	**3.98**	Marginal downward trend in baseline
P3R	Total Organic Halides (TOX)	mg/L	0	24	83%	0.0222	0.0184	0.00928	0.0872	0.00333	0.035	0.01	0.3	3/27/2017	12/19/2023	-	-12	0.390	**No Trend**	-	-	-	0.0872	**0.0872**	Use the larger of UPL and PQL
P4R	Arsenic	mg/L	0	25	24%	0.00160	0.00143	0.00201	0.00751	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P4R	Barium	mg/L	0	25	100%	0.207	0.035	0.168	0.295	-	-	0.01	0.01	12/28/2016	12/18/2023	1								**1**	Use MCL
P4R	Cadmium	mg/L	0	25	0%	-	-	-	-	0.0003	0.0003	0.001	0.001	12/28/2016	12/18/2023	0.01								**0.01**	Use MCL
P4R	Chemical Oxygen Demand (COD)	mg/L	0	25	36%	4.53	3.16	5.18	13.55	5	5	15	15	12/28/2016	12/18/2023	-	31	0.206	**No Trend**	-	-	-	13.55	**PQL**	All baseline data are below PQL
P4R	Chloride	mg/L	0	25	100%	65.4	16.6	45.1	111	-	-	1	10	12/28/2016	12/18/2023	-	-82	0.029	**Downward**	0.007	Non-parametric	-	111	**111**	Marginal downward trend in baseline
P4R	Chromium (total)	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P4R	Lead	mg/L	0	25	8%	0.000171	0.000075	0.000387	0.000448	0.0003	0.0003	0.001	0.001	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P4R	Manganese	mg/L	0	25	100%	0.758	0.198	0.502	1.22	-	-	0.003	0.01	12/28/2016	12/18/2023	-	-13	0.390	**No Trend**	0.001	Non-parametric	-	1.22	**1.22**	
P4R	Mercury	mg/L	0	25	0%	-	-	-	-	0.00008	0.00008	0.0002	0.0002	12/28/2016	12/18/2023	0.002								**0.002**	Use MCL
P4R	Pentachlorophenol	mg/L	0	25	0%	-	-	-	-	0.000382	0.000469	0.000784	0.000939	12/28/2016	12/18/2023	-	-	-	**-**	-	-	-	-	**PQL**	All baseline data are nondetects
P4R	Selenium	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.01								**0.01**	Use MCL
P4R	Silver	mg/L	0	25	0%	-	-	-	-	0.001	0.001	0.002	0.002	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P4R	Total Organic Carbon (TOC)	mg/L	0	25	100%	2.67	0.55	1.62	3.85	-	-	0.02	1	12/28/2016	12/18/2023	-	-69	0.056	**No Trend**	0.855	Normal	1.74	3.62	**3.62**	
P4R	Total Organic Halides (TOX)	mg/L	0	24	67%	0.0182	0.0547	0.0039	0.0266	0.00333	0.547	0.01	0.3	3/27/2017	12/18/2023	-	0	0.500	**No Trend**	-	-	-	0.0266	**0.0266**	Use the larger of UPL and PQL
P5R	Arsenic	mg/L	0	26	12%	0.00123	0.00064	0.00269	0.00311	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P5R	Barium	mg/L	0	26	100%	0.174	0.027	0.0946	0.219	-	-	0.01	0.01	12/28/2016	12/18/2023	1								**1**	Use MCL
P5R	Cadmium	mg/L	0	26	0%	-	-	-	-	0.0003	0.0003	0.001	0.001	12/28/2016	12/18/2023	0.01								**0.01**	Use MCL
P5R	Chemical Oxygen Demand (COD)	mg/L	0	26	15%	3.19	1.86	5.04	10.6	5	5	15	15	12/28/2016	12/18/2023	-	14	0.323	**No Trend**	-	-	-	10.6	**PQL**	All baseline data are below PQL
P5R	Chloride	mg/L	0	26	100%	78.7	14.1	56.6	104	-	-	1	10	12/28/2016	12/18/2023	-	210	0.000	**Upward**	0.172	Normal	1.73	103	**103**	Significant upward trend; UPL provisional
P5R	Chromium (total)	mg/L	0	26	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P5R	Lead	mg/L	0	26	15%	0.000283	0.000382	0.000348	0.00183	0.0003	0.0003	0.001	0.001	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P5R	Manganese	mg/L	0	26	100%	0.548	0.134	0.305	0.797	-	-	0.003	0.01	12/28/2016	12/18/2023	-	0	0.500	**No Trend**	0.305	Normal	1.73	0.780	**0.780**	
P5R	Mercury	mg/L	0	26	4%	4.24E-05	1.24E-05	0.000103	0.000103	0.00008	0.00008	0.0002	0.0002	12/28/2016	12/18/2023	0.002								**0.002**	Use MCL
P5R	Pentachlorophenol	mg/L	0	25	0%	-	-	-	-	0.000387	0.000494	0.000779	0.000988	12/28/2016	12/18/2023	-	-	-	**-**	-	-	-	-	**PQL**	All baseline data are nondetects
P5R	Selenium	mg/L	0	26	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/18/2023	0.01								**0.01**	Use MCL
P5R	Silver	mg/L	0	26	0%	-	-	-	-	0.001	0.001	0.002	0.002	12/28/2016	12/18/2023	0.05								**0.05**	Use MCL
P5R	Total Organic Carbon (TOC)	mg/L	0	26	100%	1.50	0.39	0.859	2.59	-	-	0.02	1	12/28/2016	12/18/2023	-	-52	0.130	**No Trend**	0.318	Normal	1.73	2.17	**2.17**	
P5R	Total Organic Halides (TOX)	mg/L	0	25	76%	0.0109	0.0091	0.00352	0.0372	0.00333	0.049	0.01	0.3	3/27/2017	12/18/2023	-	47	0.139	**No Trend**	-	-	-	0.0372	**0.0372**	Use the larger of UPL and PQL
P6R	Arsenic	mg/L	0	25	36%	0.00156	0.00079	0.002	0.00319	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL

Attachment A. Intra-well Baseline Statistical Evaluation Results Summary (2 of 2)

						Baseline Summary Statistics								Baseline Sample Date Range		40 CFR Ch. I §264.94	Baseline Data Trend Analysis			Shapiro-Wilk W Test		Upper Prediction Limit (UPL)			
Well	**Constituent**	**Unit**	**No. of Outliers / Earlier Samples Excluded**	**No. of Samples Used**	**Detection Rate**	**Mean**	**Std Dev**	**Min Detected Value**	**Max Detected Value**	**Min MDL of NDs**	**Max MDL of NDs**	**Min PQL of All Samples**	**Max PQL of All Samples**	**First Sample Date**	**Last Sample Date**	**Maximum Concentration Limit (MCL)**	**Mann-Kendall S Statistic**	**p-value**	**Trend Test Result**	**Normality Test p-value**	**Distribution**	***K*-Multiplier**	**UPL with Retesting Strategy**	**Concentration Limit**	**Note**
P6R	Barium	mg/L	0	25	100%	0.170	0.024	0.121	0.224	-	-	0.01	0.01	12/28/2016	12/19/2023	1								**1**	Use MCL
P6R	Cadmium	mg/L	0	25	0%	-	-	-	-	0.0003	0.0003	0.001	0.001	12/28/2016	12/19/2023	0.01								**0.01**	Use MCL
P6R	Chemical Oxygen Demand (COD)	mg/L	0	25	44%	5.19	3.63	5.91	16	5	5	15	15	12/28/2016	12/19/2023	-	-1	0.500	**No Trend**	-	-	-	16	**16**	
P6R	Chloride	mg/L	0	25	100%	63.8	14.0	42.9	92.1	-	-	1	10	12/28/2016	12/19/2023	-	-61	0.081	**No Trend**	0.390	Normal	1.74	88.1	**88.1**	
P6R	Chromium (total)	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P6R	Lead	mg/L	0	25	8%	0.000164	0.000048	0.000305	0.000342	0.0003	0.0003	0.001	0.001	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P6R	Manganese	mg/L	0	25	100%	1.03	0.33	0.456	2.02	-	-	0.003	0.1	12/28/2016	12/19/2023	-	121	0.003	**Upward**	0.209	Normal	1.74	1.61	**1.61**	Significant upward trend; UPL provisional
P6R	Mercury	mg/L	0	25	4%	4.23E-05	1.15E-05	9.77E-05	9.77E-05	0.00008	0.00008	0.0002	0.0002	12/28/2016	12/19/2023	0.002								**0.002**	Use MCL
P6R	Pentachlorophenol	mg/L	0	25	0%	-	-	-	-	0.000381	0.0005	0.000783	0.000999	12/28/2016	12/19/2023	-	-	-	**-**	-	-	-	-	**PQL**	All baseline data are nondetects
P6R	Selenium	mg/L	0	25	0%	-	-	-	-	0.002	0.002	0.005	0.006	12/28/2016	12/19/2023	0.01								**0.01**	Use MCL
P6R	Silver	mg/L	0	25	0%	-	-	-	-	0.001	0.001	0.002	0.002	12/28/2016	12/19/2023	0.05								**0.05**	Use MCL
P6R	Total Organic Carbon (TOC)	mg/L	0	25	100%	2.82	0.70	1.785	4.86	-	-	0.02	1	12/28/2016	12/19/2023	-	-63	0.074	**No Trend**	0.066	Normal	1.74	4.03	**4.03**	
P6R	Total Organic Halides (TOX)	mg/L	0	24	54%	0.0198	0.0590	0.00372	0.0564	0.00333	0.583	0.01	0.3	3/27/2017	12/19/2023	-	-51	0.095	**No Trend**	-	-	-	0.0564	**0.0564**	Use the larger of UPL and PQL

Notes:

If duplicates existed, the average of the duplicate results was used as a single data point.

Nondetects were substituted by half of MDL for the computation of summary statistics.

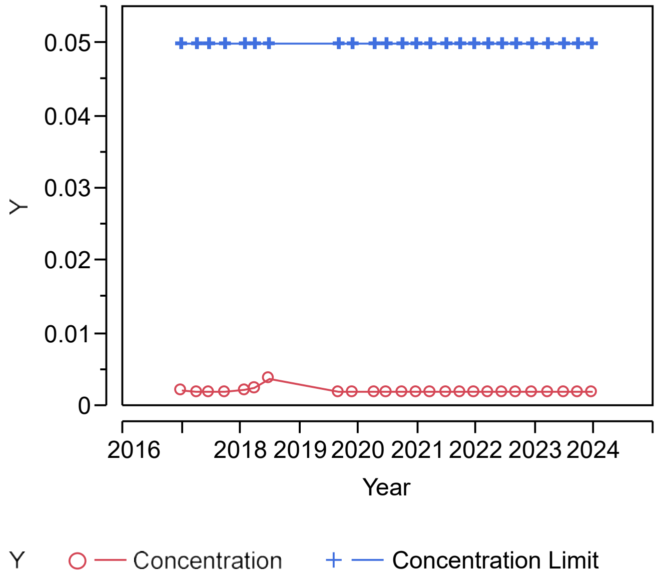
The UPL with restesting strategy was based on the "1-of-3 Retesting" for intrawell prediction limits on observations and site-wide annual false positive rate of 10% per media (USEPA, 2009, Table 19-11 and Table 19-20). If the initial sample exceeds the UPL, two resamples will be collected, and if both resample results exceed the UPL, the exceedance is confirmed. Otherwise, it is not considered to be an exceedance.

Acronyms:

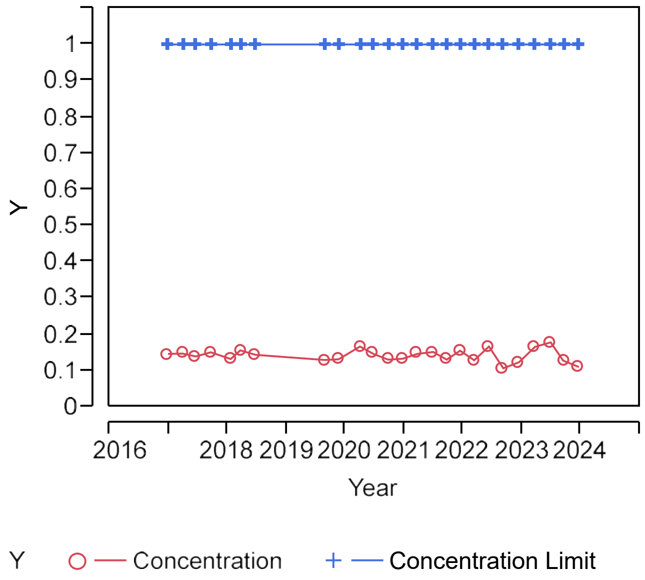
CFR	Code of Federal Regulation
COD	Chemical Oxygen Demand
MCL	Maximum Concentration Limit
MDL	Method Detection Limit
mg/L	milligram per liter
ND	Non Detect
PQL	Practical Quantitation Limit
TOC	Total Organic Carbon
TOX	Total Organic Halides
UPL	Upper Prediction Limit

Attachment B – Historical Data Trends

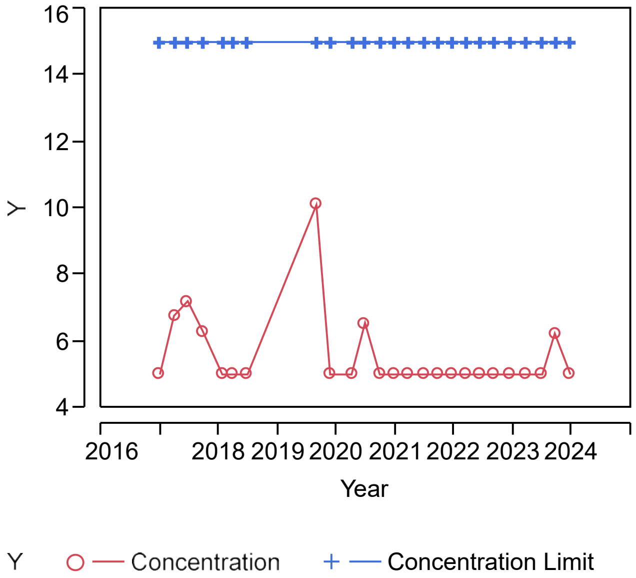
Well=P1R, Analyte=Arsenic, Unit=mg/L



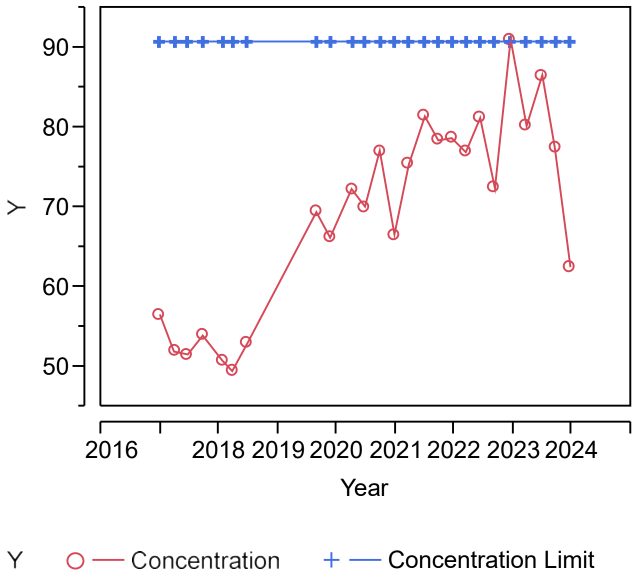
Well=P1R, Analyte=Barium, Unit=mg/L



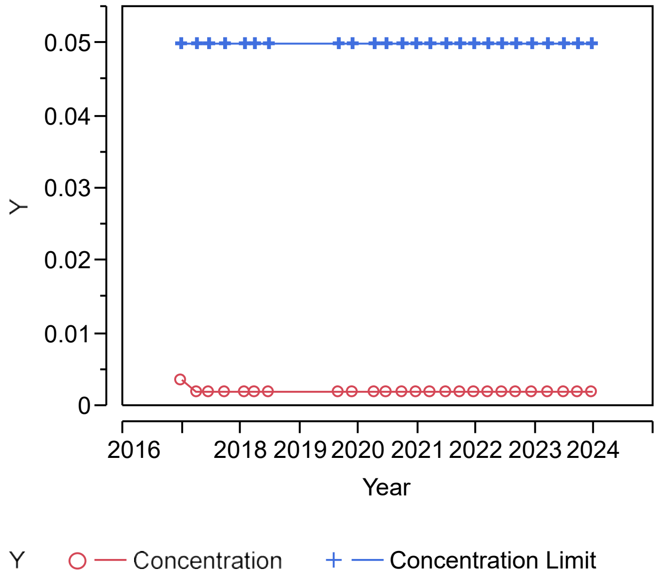
Well=P1R, Analyte=Chemical Oxygen Demand (COD), Unit=mg/L



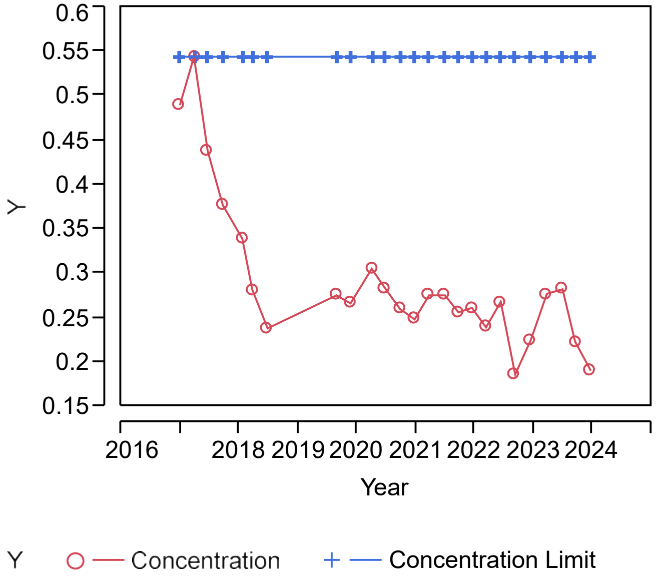
Well=P1R, Analyte=Chloride, Unit=mg/L



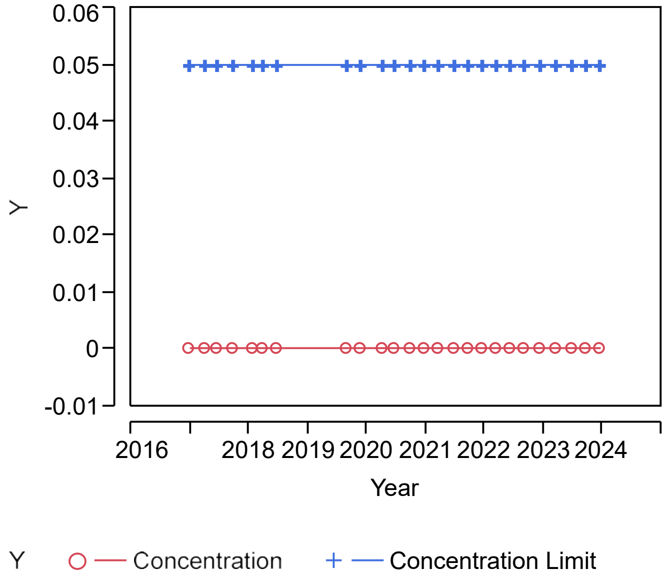
Well=P1R, Analyte=Chromium (total), Unit=mg/L



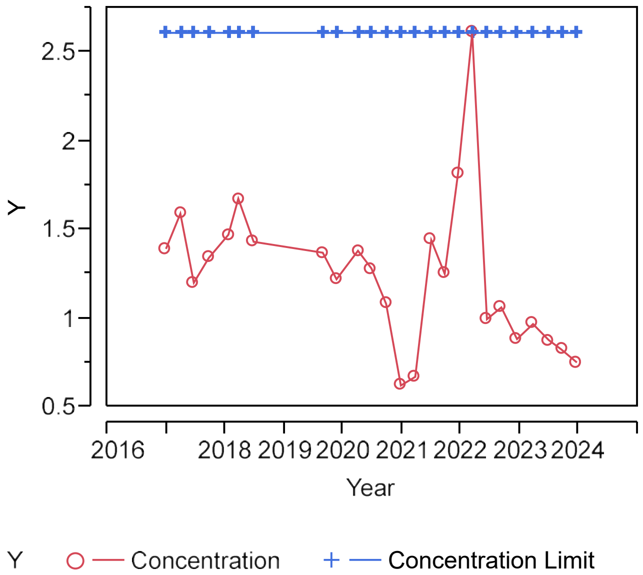
Well=P1R, Analyte=Manganese, Unit=mg/L

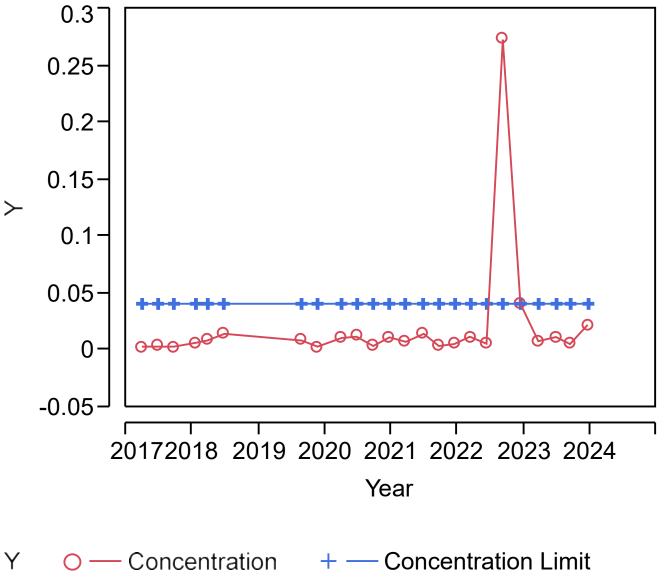


Well=P1R, Analyte=Lead, Unit=mg/L

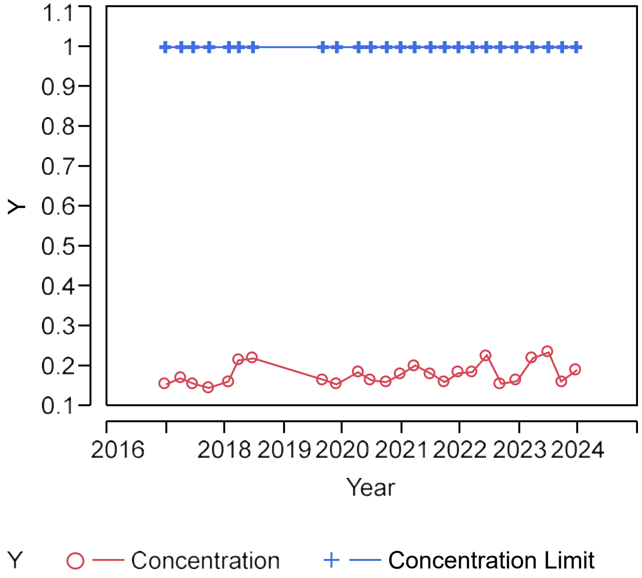


Well=P1R, Analyte=Total Organic Carbon (TOC), Unit=mg/L

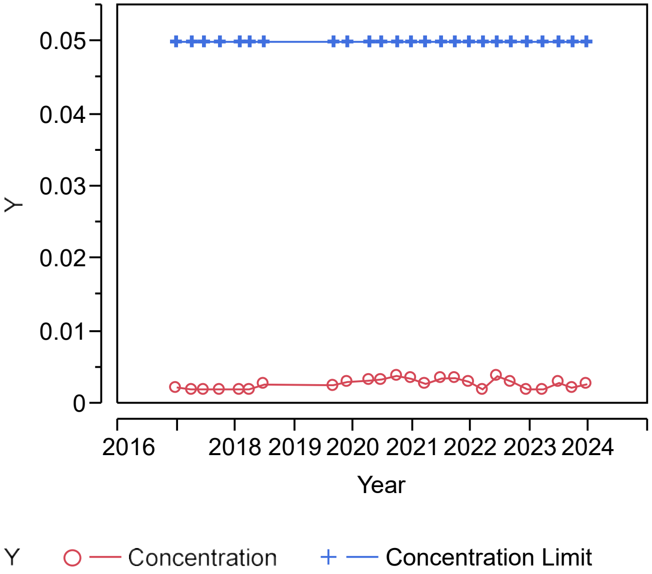




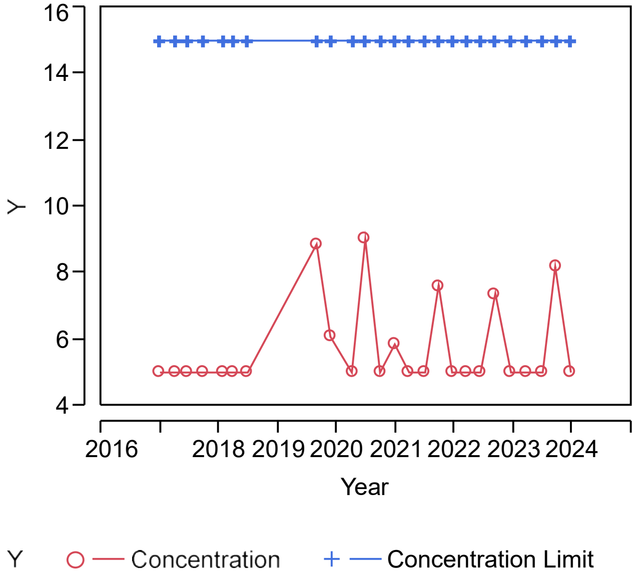
Well=P1R, Analyte=Total Organic Halides (TOX), Unit=mg/L



Well=P2R, Analyte=Barium, Unit=mg/L

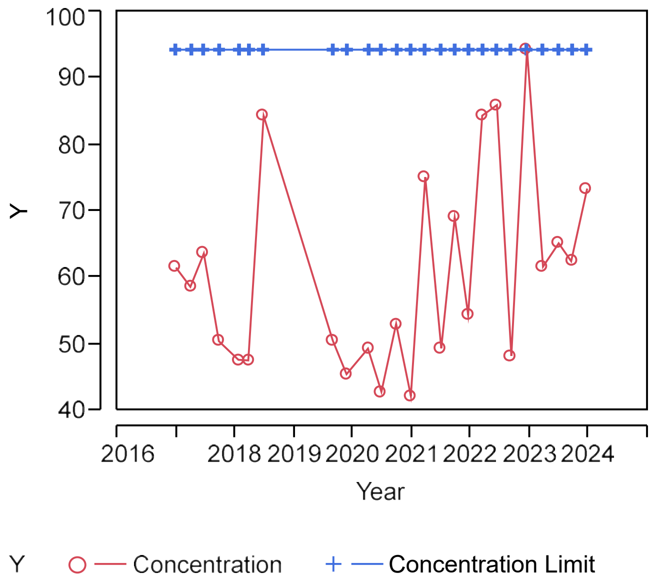


Well=P2R, Analyte=Arsenic, Unit=mg/L

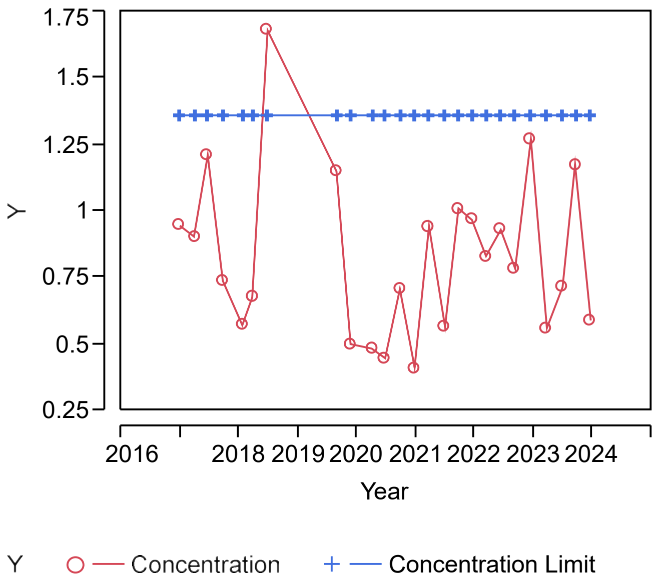


Well=P2R, Analyte=Chemical Oxygen Demand (COD), Unit=mg/L

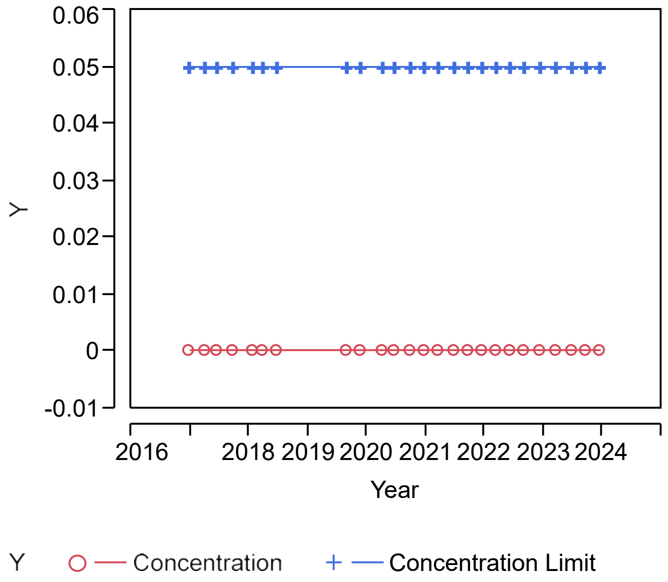
Well=P2R, Analyte=Chloride, Unit=mg/L



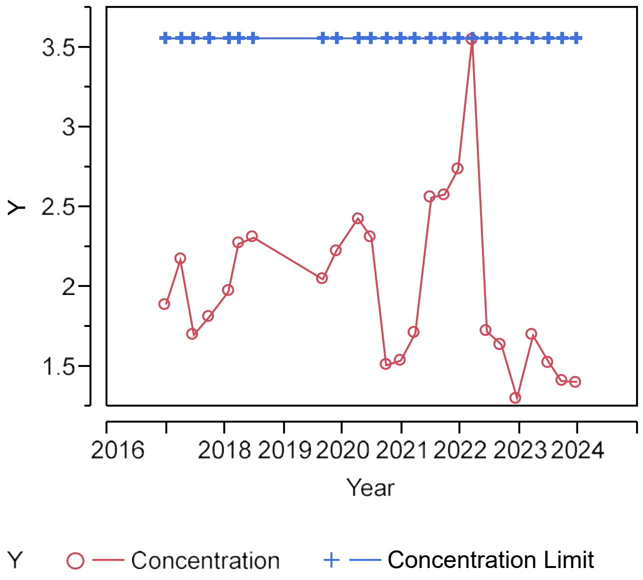
Well=P2R, Analyte=Manganese, Unit=mg/L



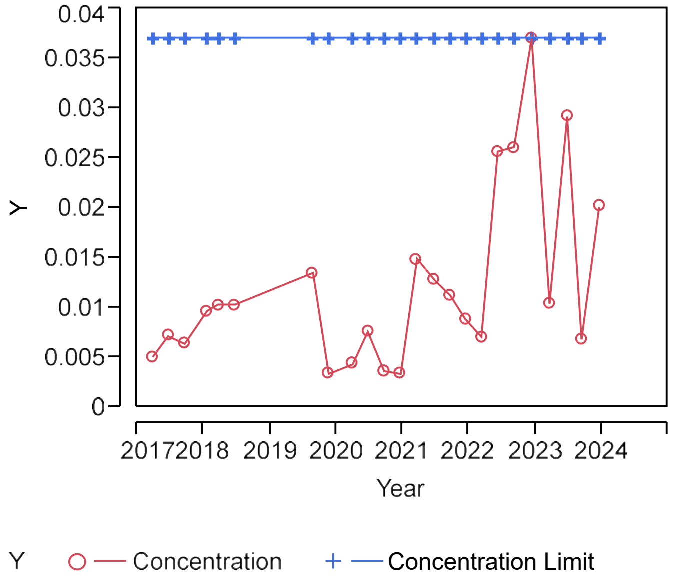
Well=P2R, Analyte=Lead, Unit=mg/L



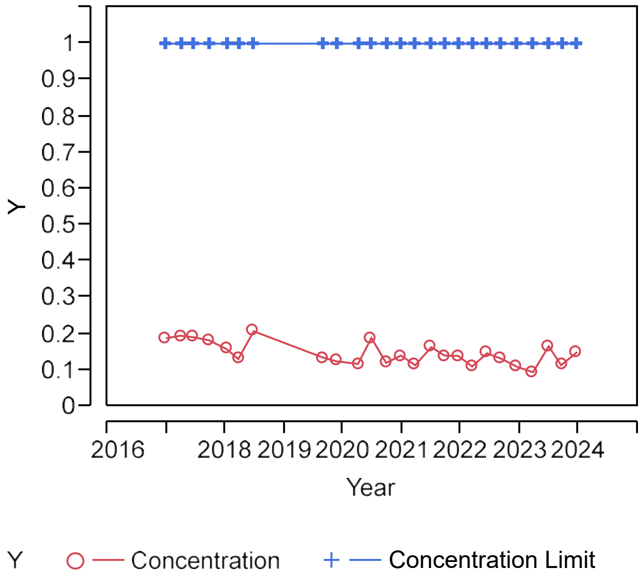
Well=P2R, Analyte=Total Organic Carbon (TOC), Unit=mg/L



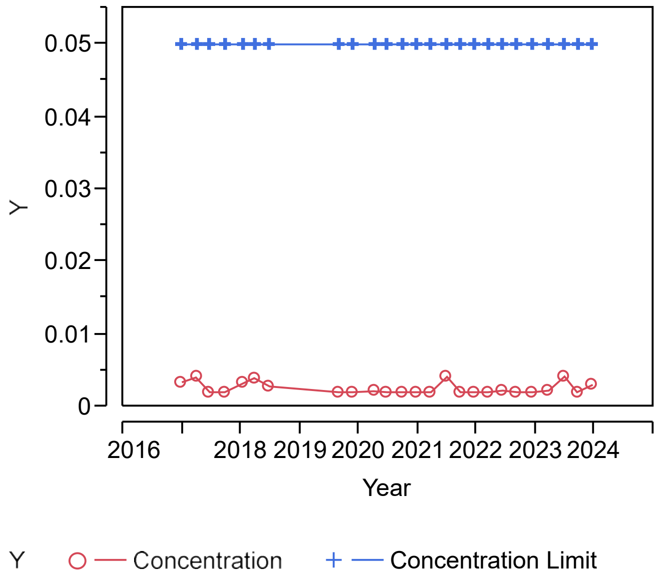
Well=P2R, Analyte=Total Organic Halides (TOX), Unit=mg/L



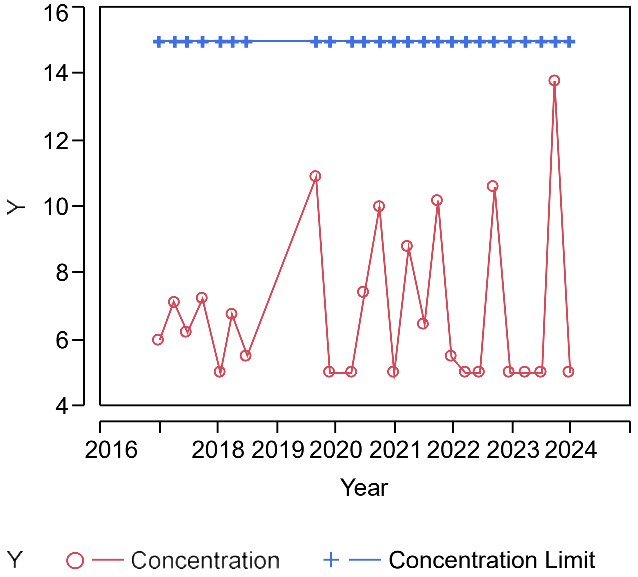
Well=P3R, Analyte=Barium, Unit=mg/L



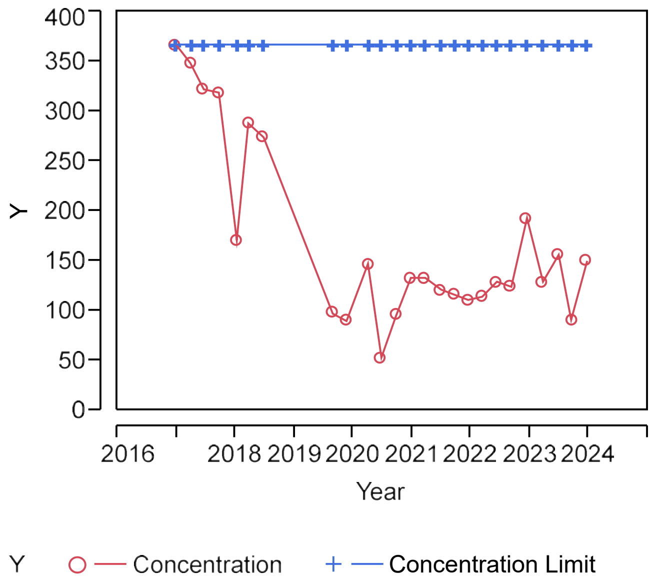
Well=P3R, Analyte=Arsenic, Unit=mg/L



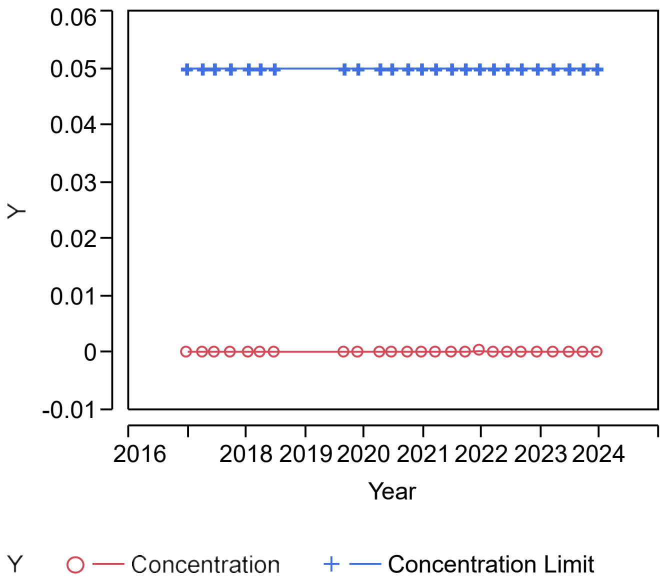
Well=P3R, Analyte=Chemical Oxygen Demand (COD), Unit=mg/L



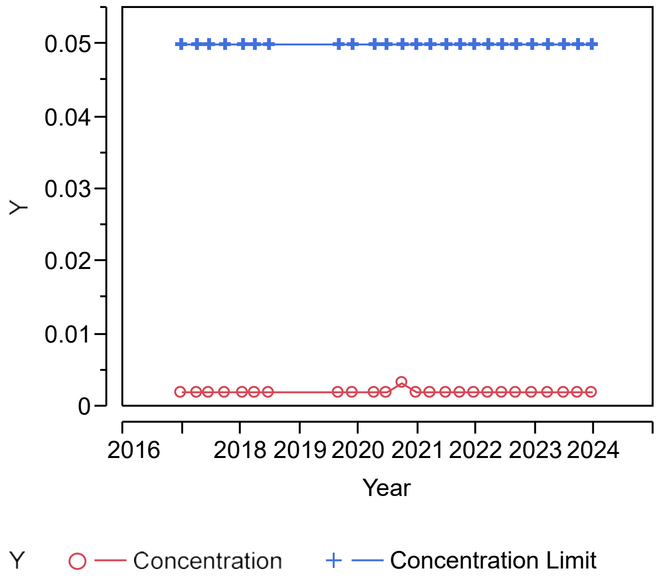
Well=P3R, Analyte=Chloride, Unit=mg/L



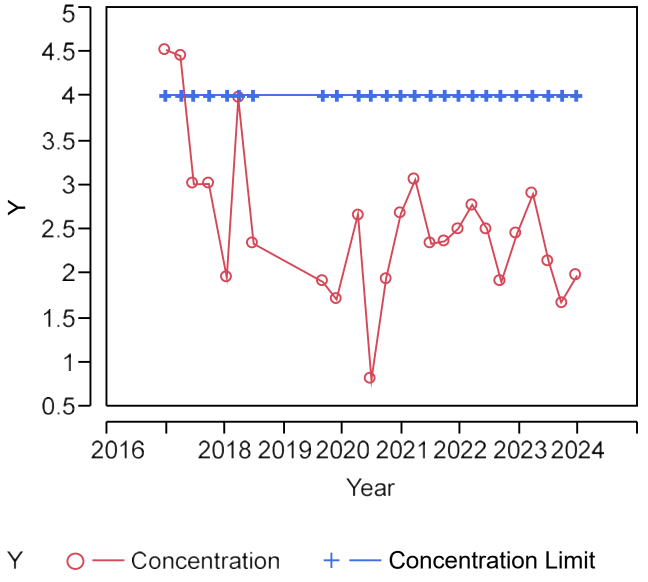
Well=P3R, Analyte=Lead, Unit=mg/L



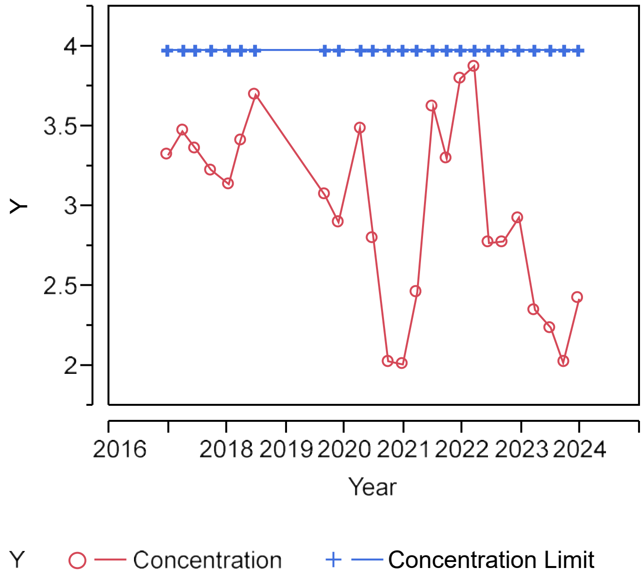
Well=P3R, Analyte=Chromium (total), Unit=mg/L



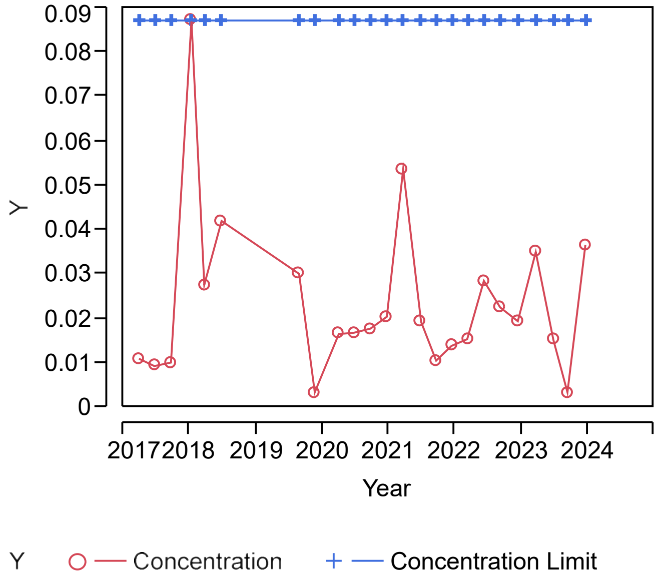
Well=P3R, Analyte=Manganese, Unit=mg/L



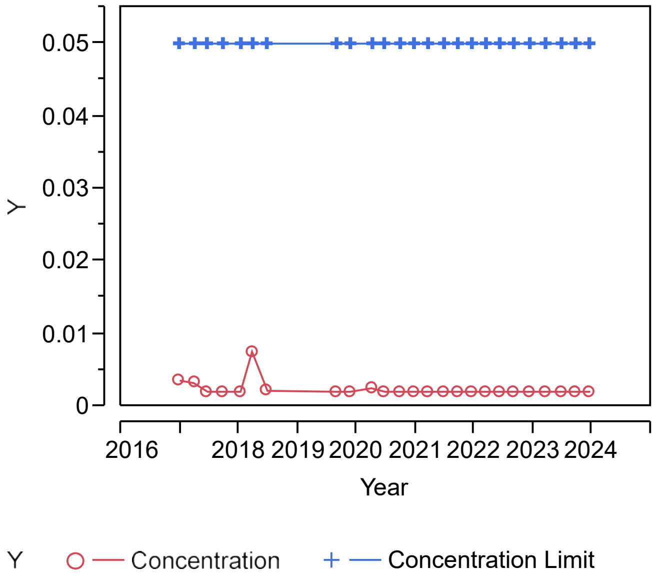
Well=P3R, Analyte=Total Organic Carbon (TOC), Unit=mg/L



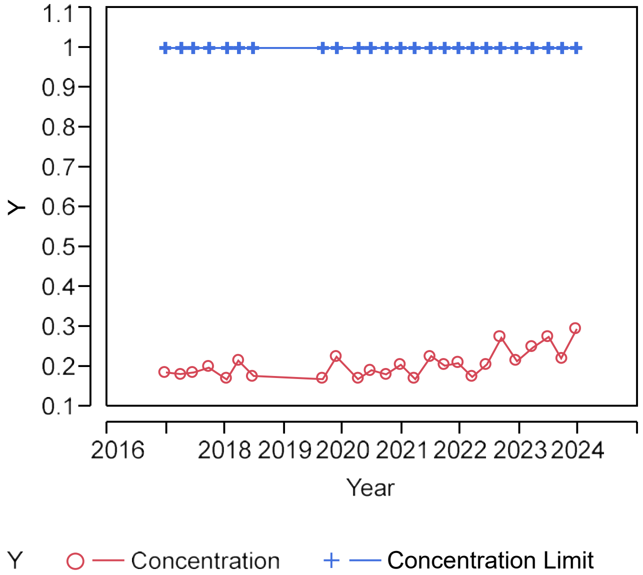
Well=P3R, Analyte=Total Organic Halides (TOX), Unit=mg/L



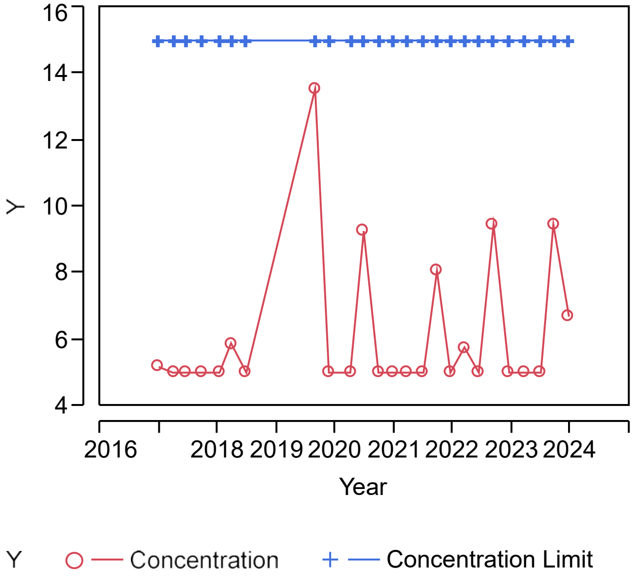
Well=P4R, Analyte=Arsenic, Unit=mg/L



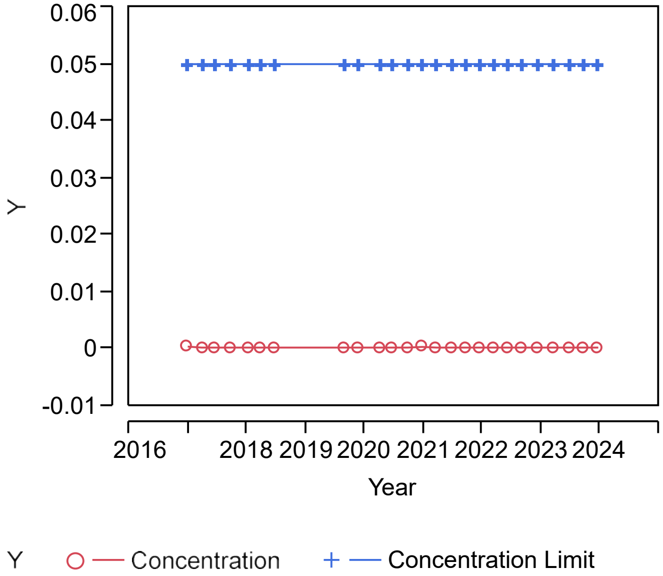
Well=P4R, Analyte=Barium, Unit=mg/L



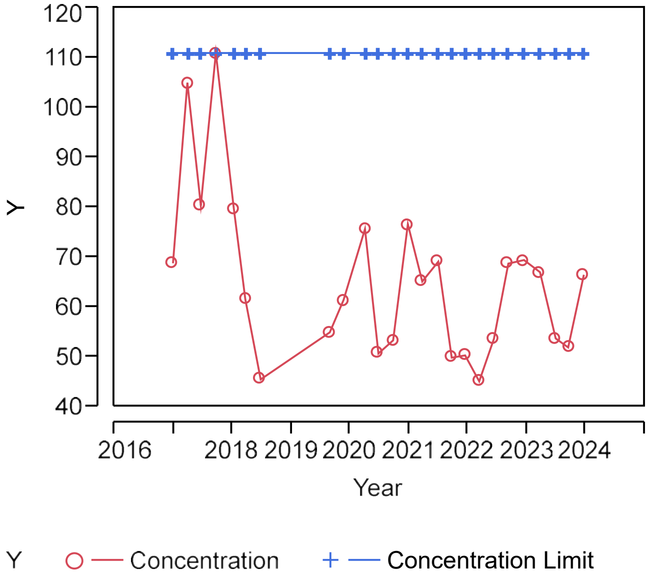
Well=P4R, Analyte=Chemical Oxygen Demand (COD), Unit=mg/L



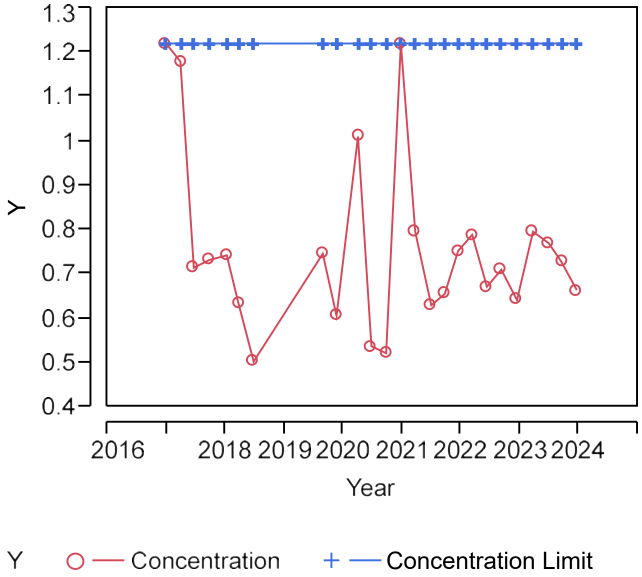
Well=P4R, Analyte=Lead, Unit=mg/L



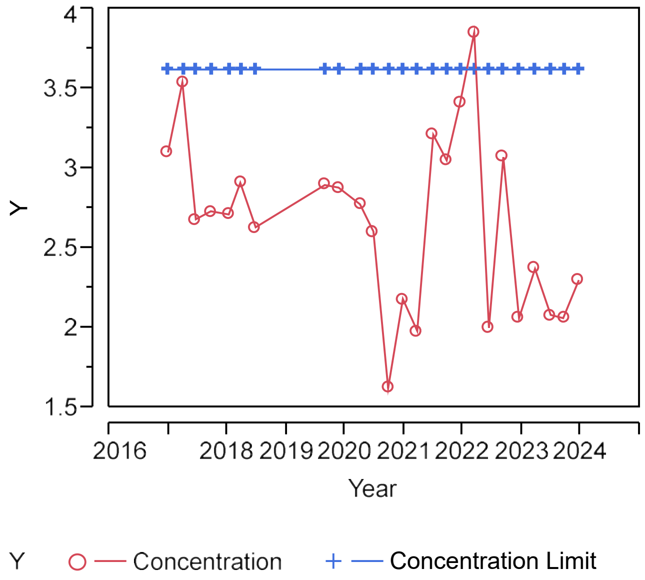
Well=P4R, Analyte=Chloride, Unit=mg/L



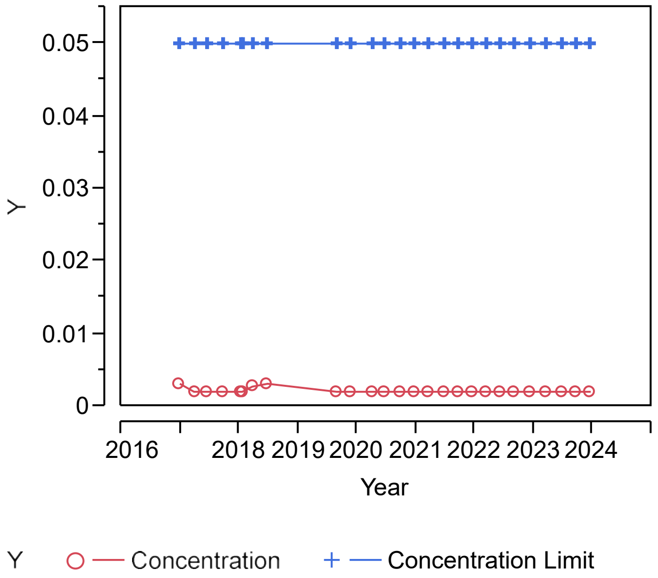
Well=P4R, Analyte=Manganese, Unit=mg/L



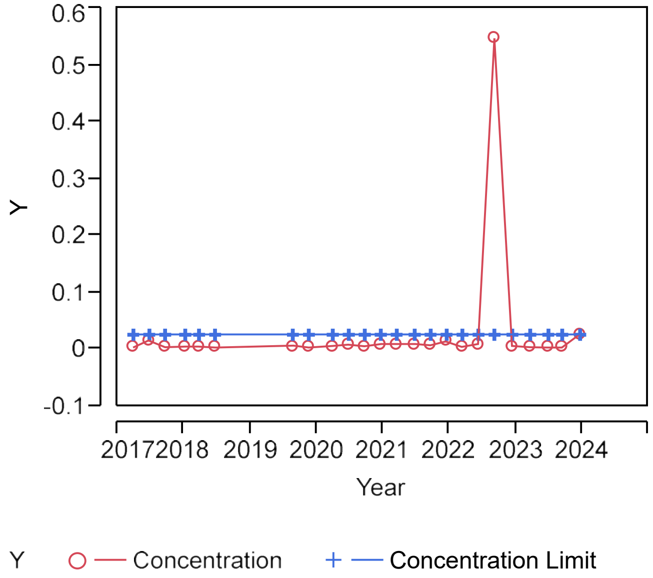
Well=P4R, Analyte=Total Organic Carbon (TOC), Unit=mg/L



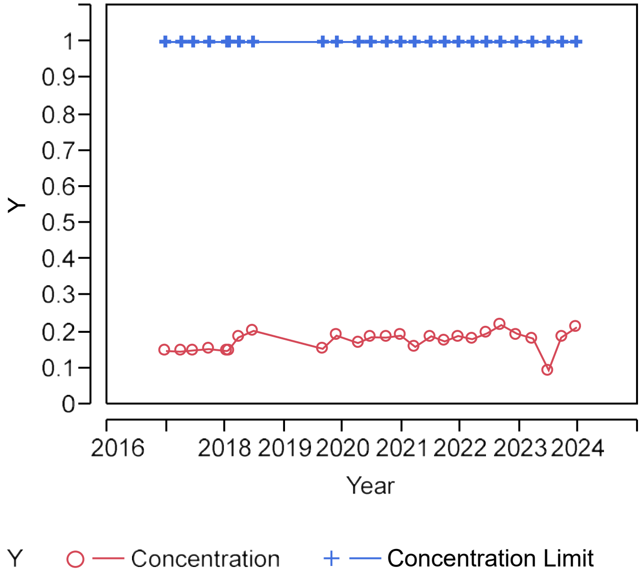
Well=P5R, Analyte=Arsenic, Unit=mg/L



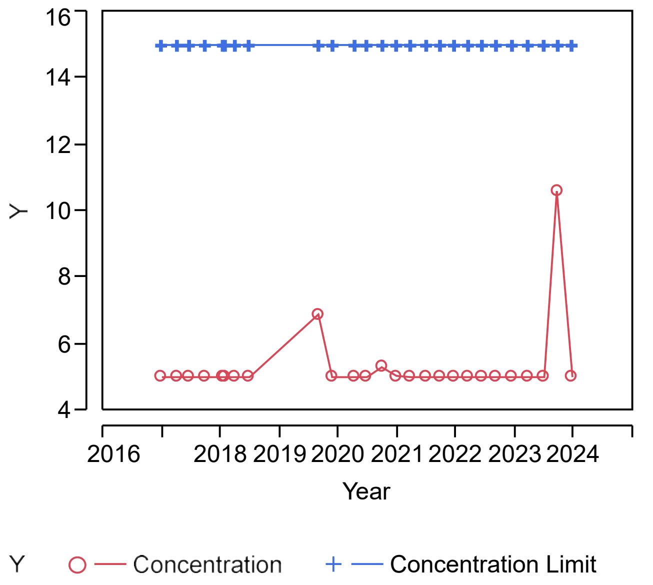
Well=P4R, Analyte=Total Organic Halides (TOX), Unit=mg/L



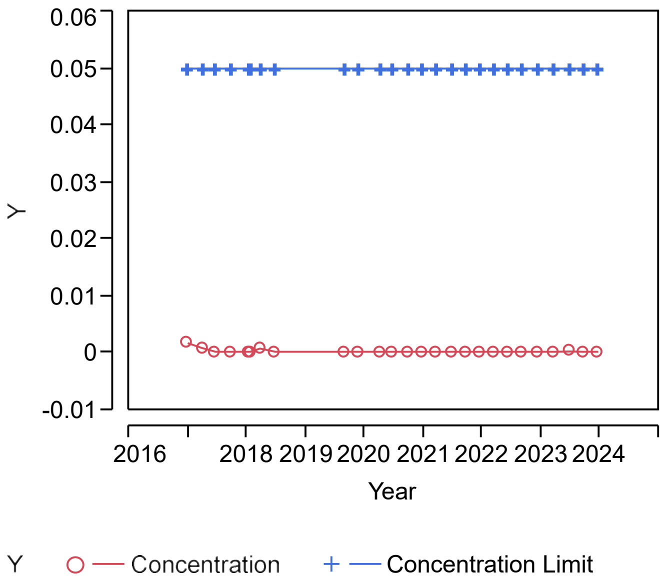
Well=P5R, Analyte=Barium, Unit=mg/L



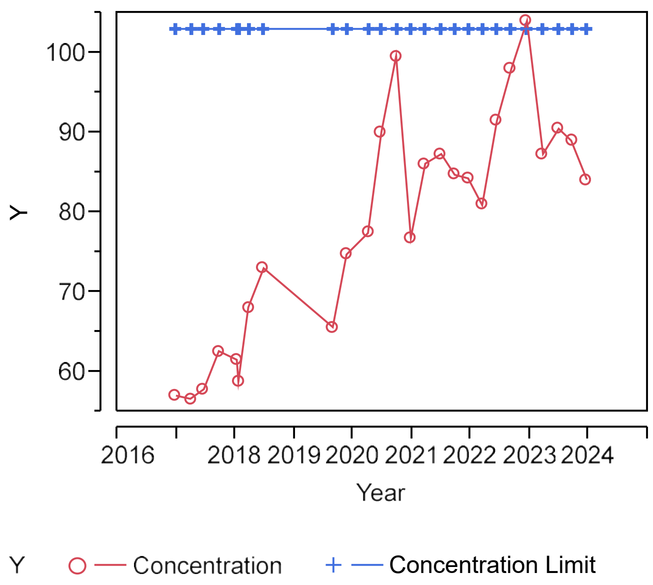
Well=P5R, Analyte=Chemical Oxygen Demand (COD), Unit=mg/L



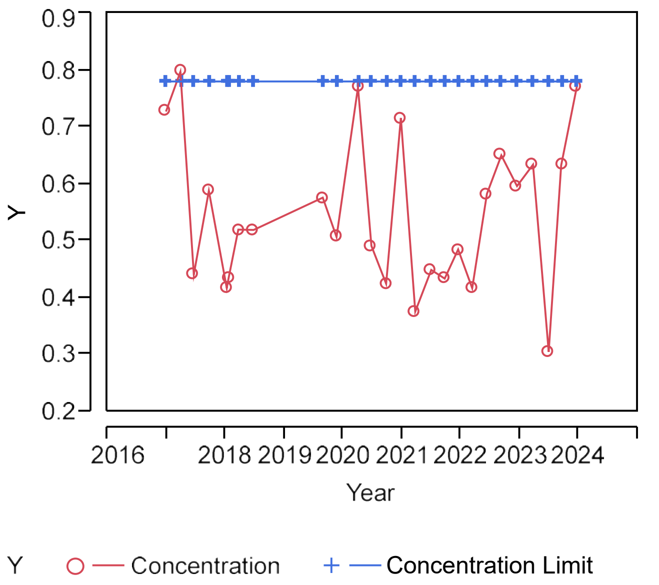
Well=P5R, Analyte=Lead, Unit=mg/L



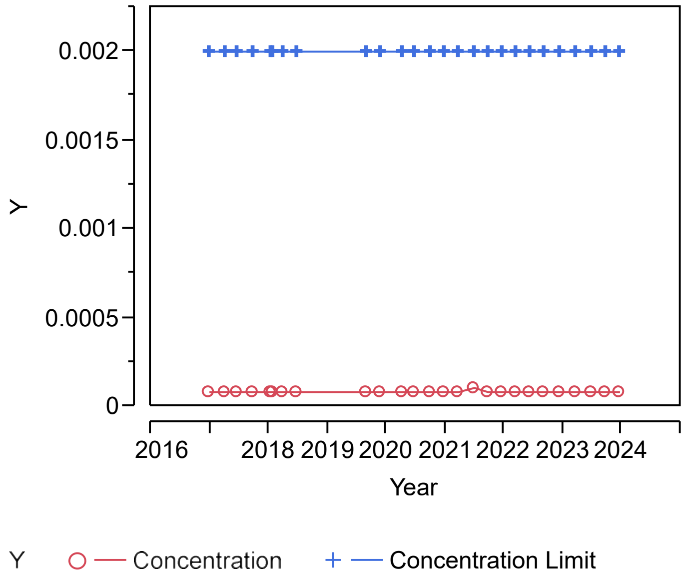
Well=P5R, Analyte=Chloride, Unit=mg/L



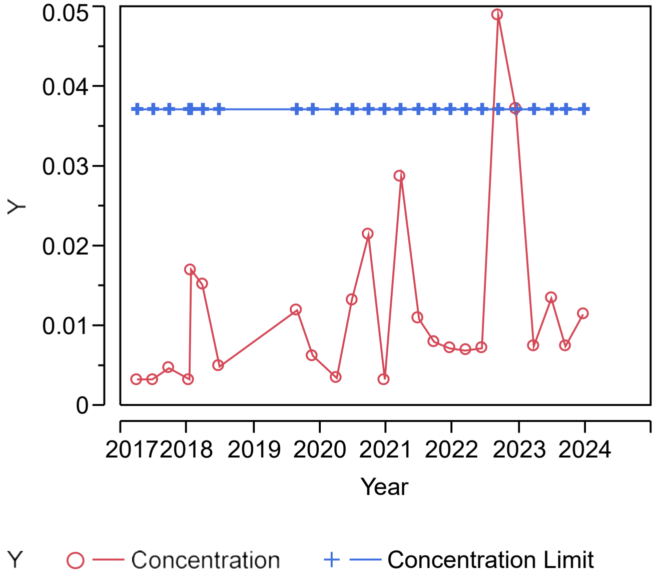
Well=P5R, Analyte=Manganese, Unit=mg/L



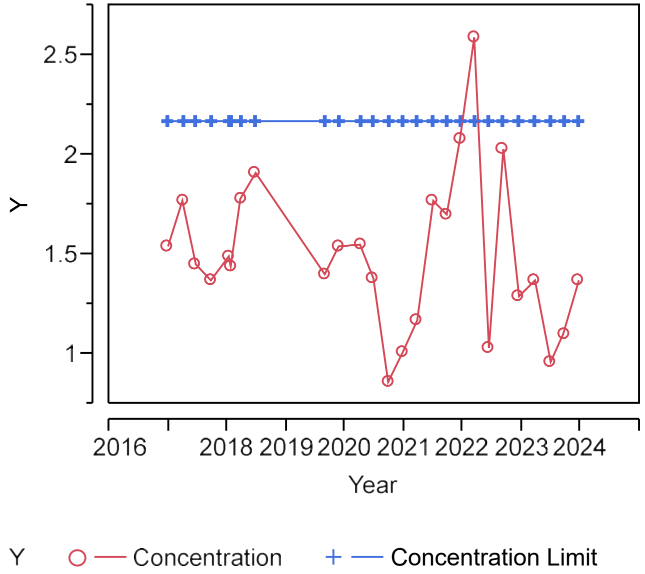
Well=P5R, Analyte=Mercury, Unit=mg/L



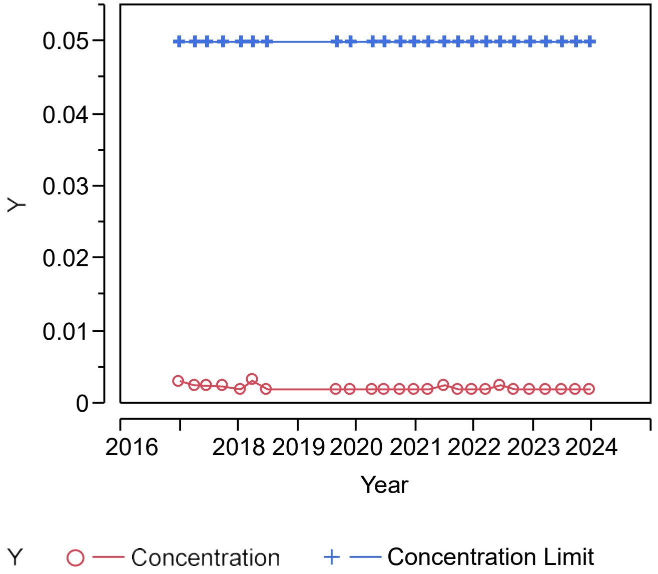
Well=P5R, Analyte=Total Organic Halides (TOX), Unit=mg/L



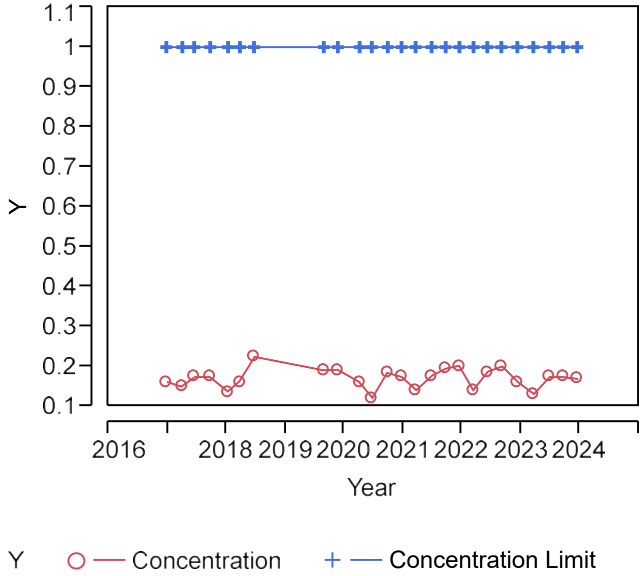
Well=P5R, Analyte=Total Organic Carbon (TOC), Unit=mg/L



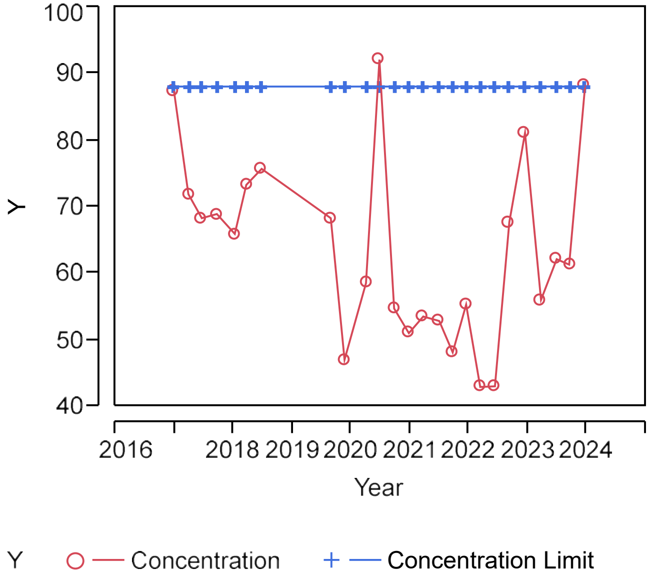
Well=P6R, Analyte=Arsenic, Unit=mg/L



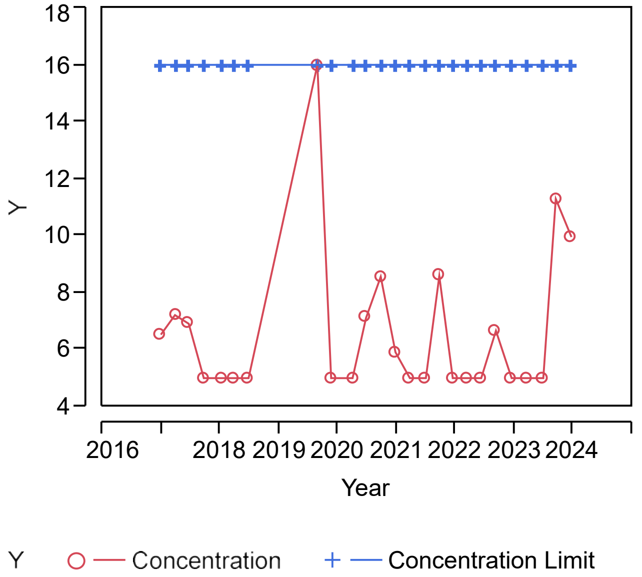
Well=P6R, Analyte=Barium, Unit=mg/L



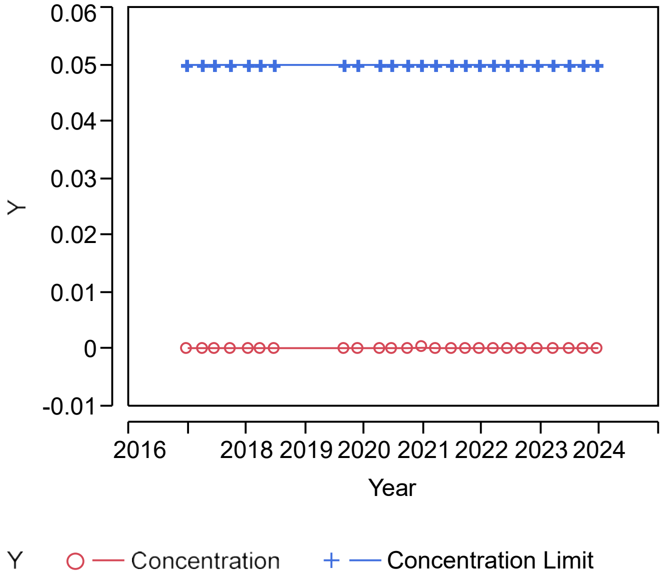
Well=P6R, Analyte=Chloride, Unit=mg/L



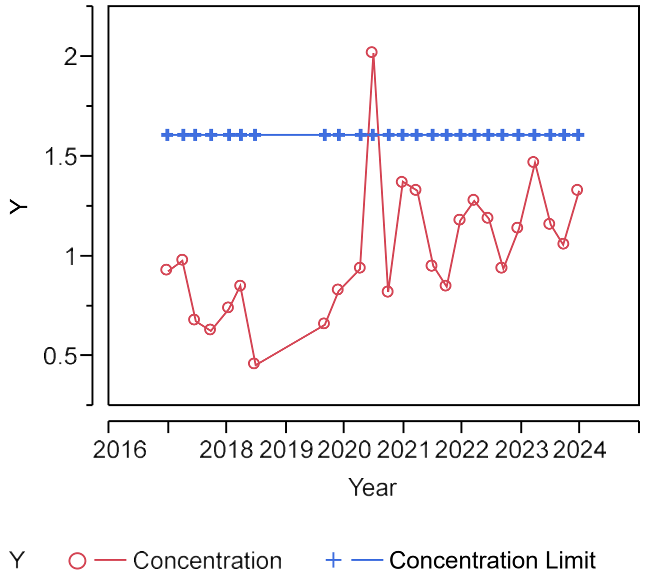
Well=P6R, Analyte=Chemical Oxygen Demand (COD), Unit=mg/L



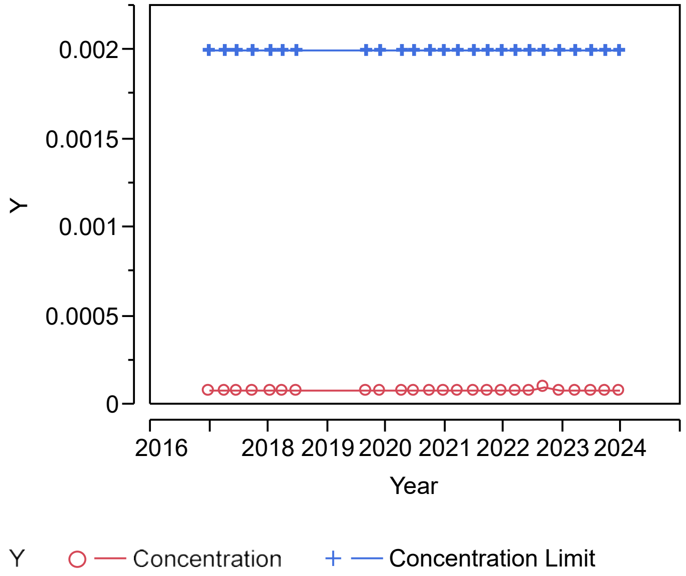
Well=P6R, Analyte=Lead, Unit=mg/L



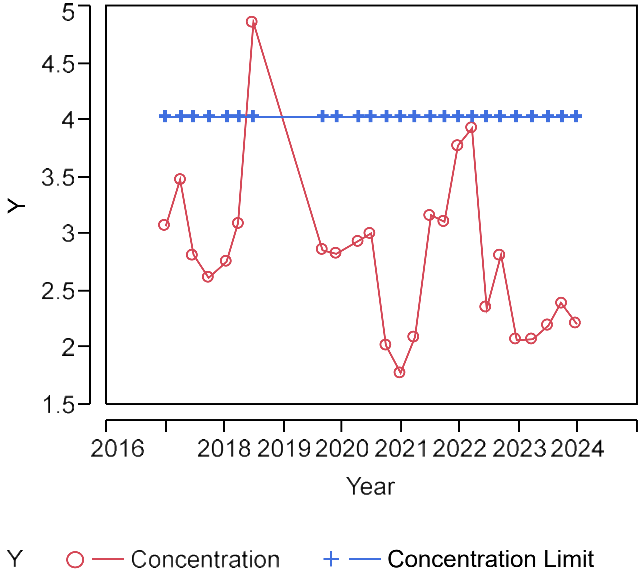
Well=P6R, Analyte=Manganese, Unit=mg/L



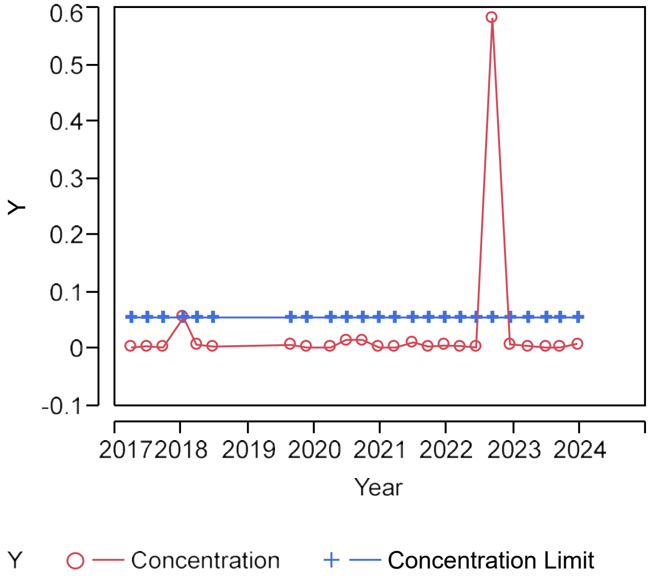
Well=P6R, Analyte=Mercury, Unit=mg/L



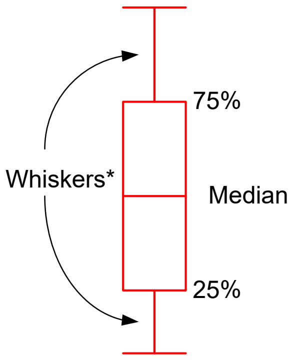
Well=P6R, Analyte=Total Organic Carbon (TOC), Unit=mg/L



Well=P6R, Analyte=Total Organic Halides (TOX), Unit=mg/L

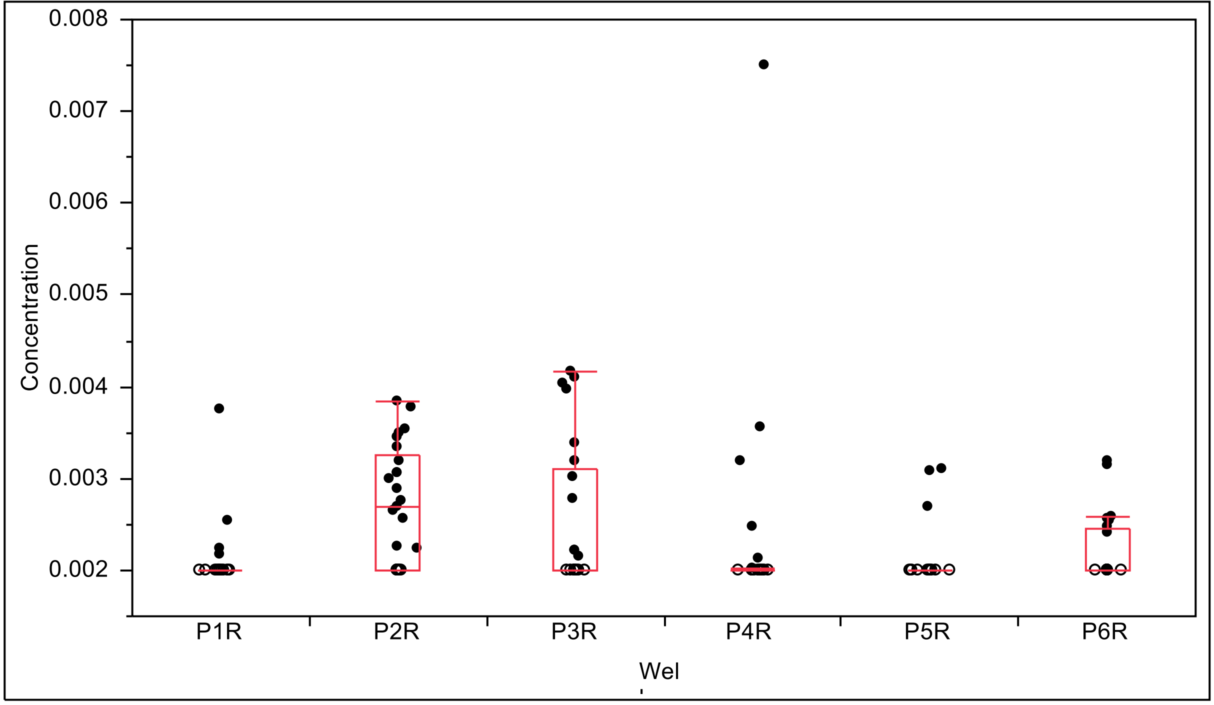


Box-and-Whisker Plot Legend

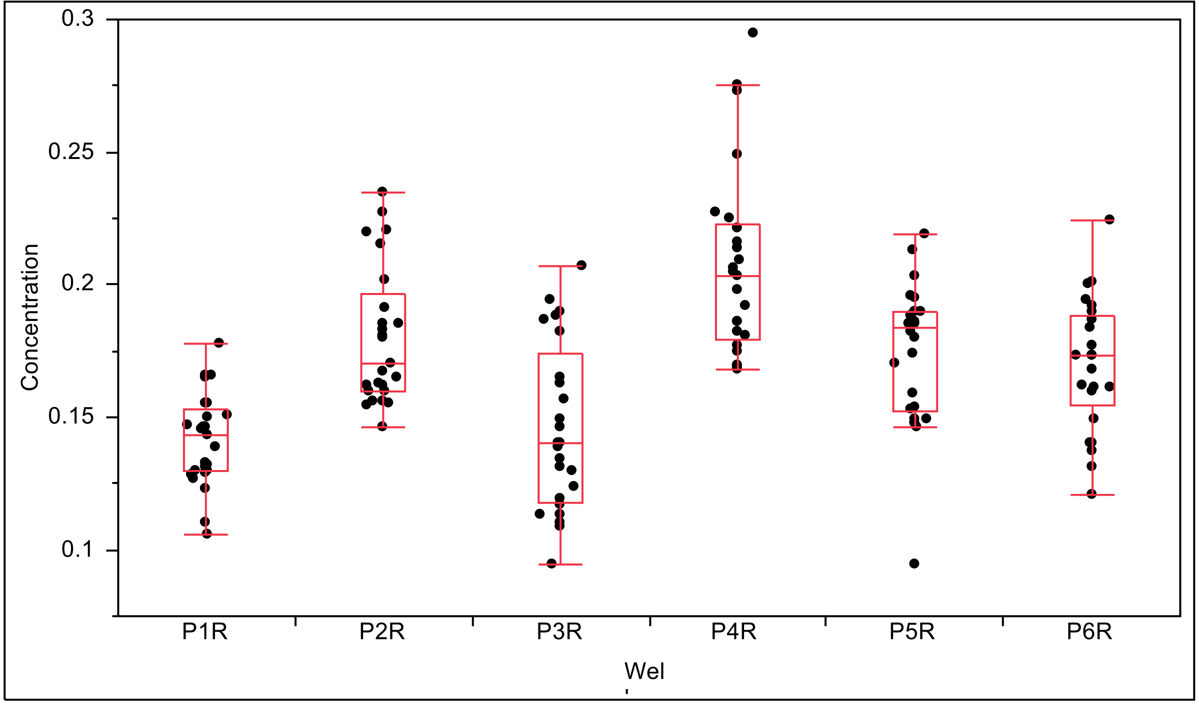


*from the ends of the box to the outermost data point that falls within upper/lower quartile +/- (1.5 × interquartile range)

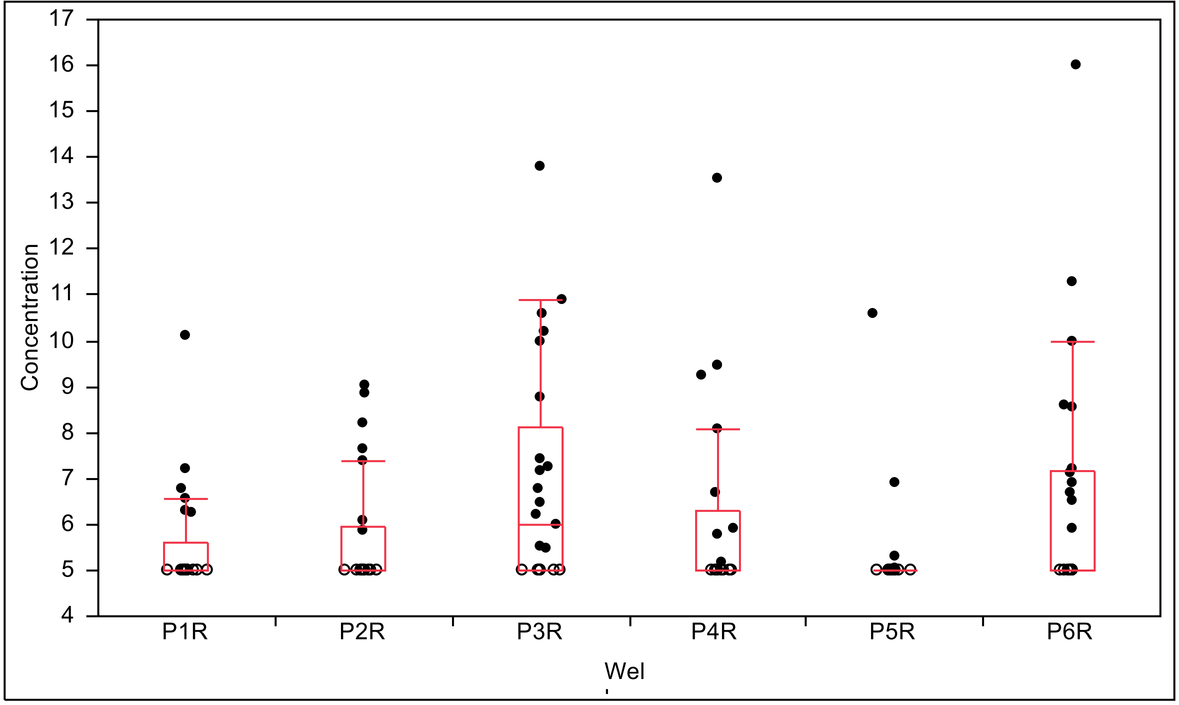
Analyte=Arsenic, Unit=mg/L



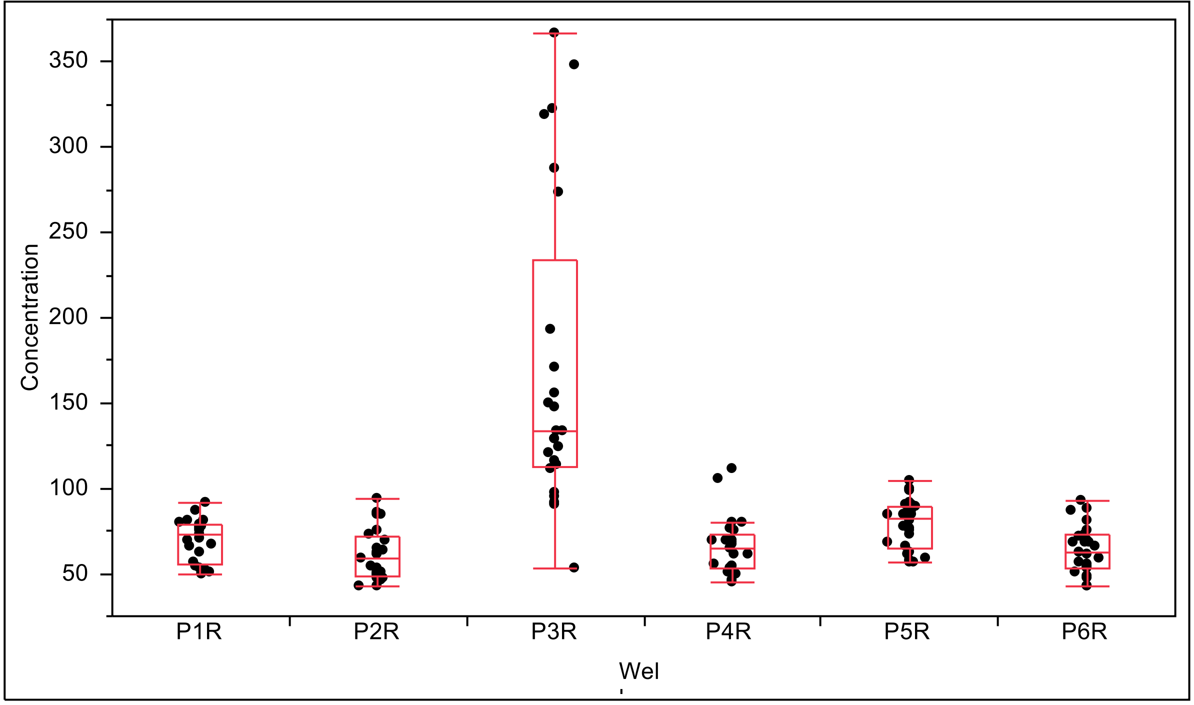
Analyte=Barium, Unit=mg/L



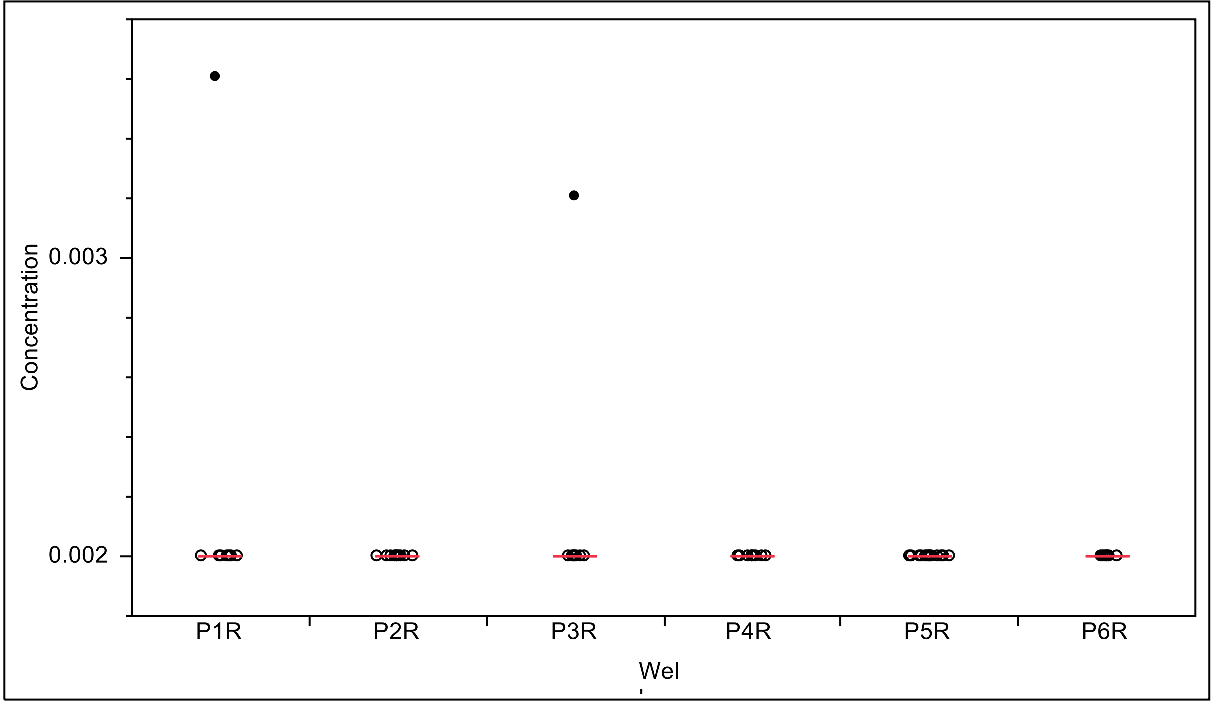
Analyte=Chemical Oxygen Demand (COD), Unit=mg/L



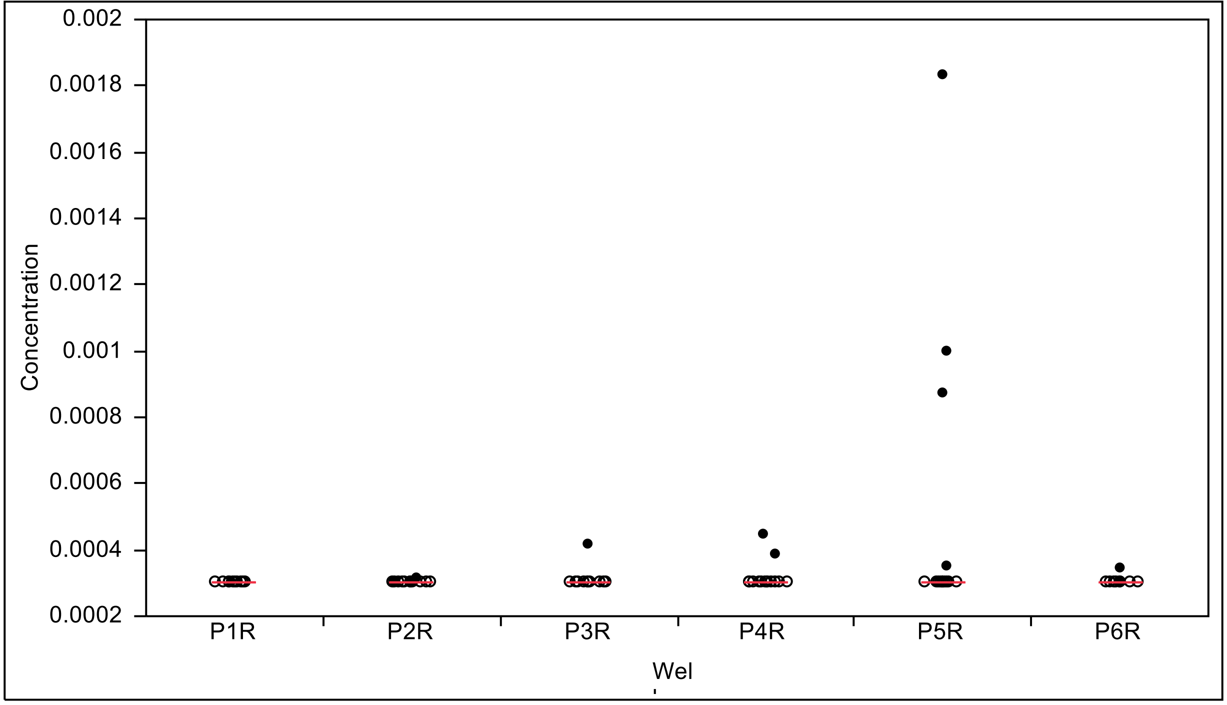
Analyte=Chloride, Unit=mg/L



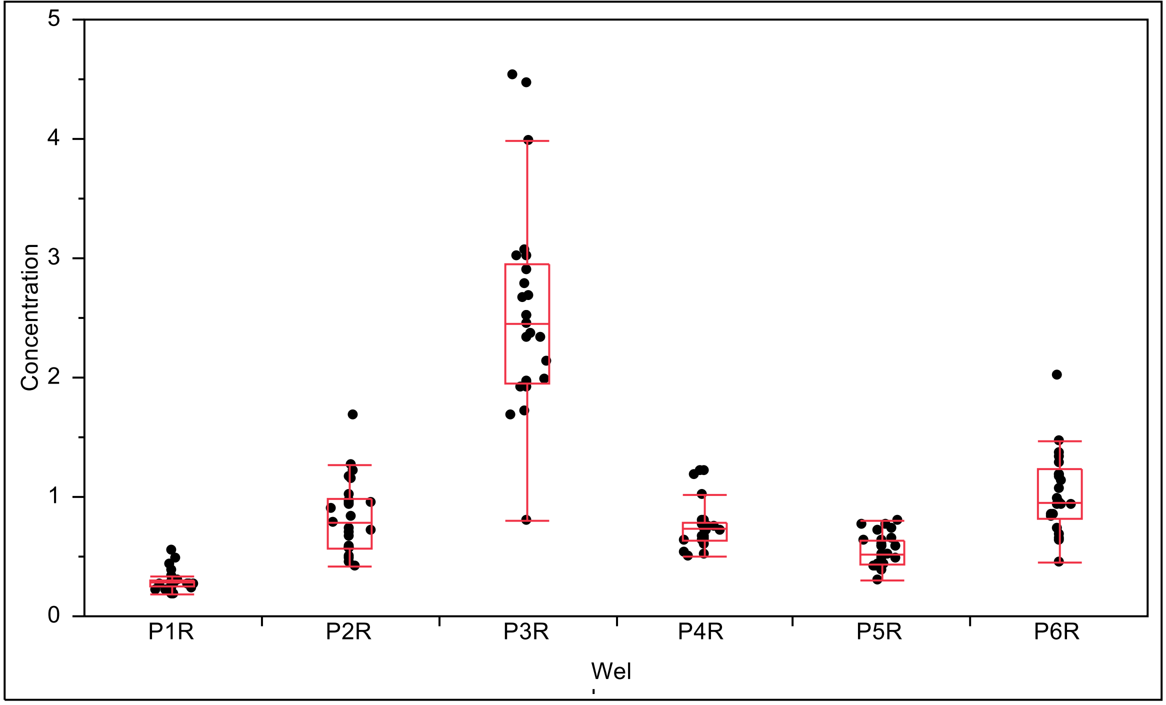
Analyte=Chromium (total), Unit=mg/L



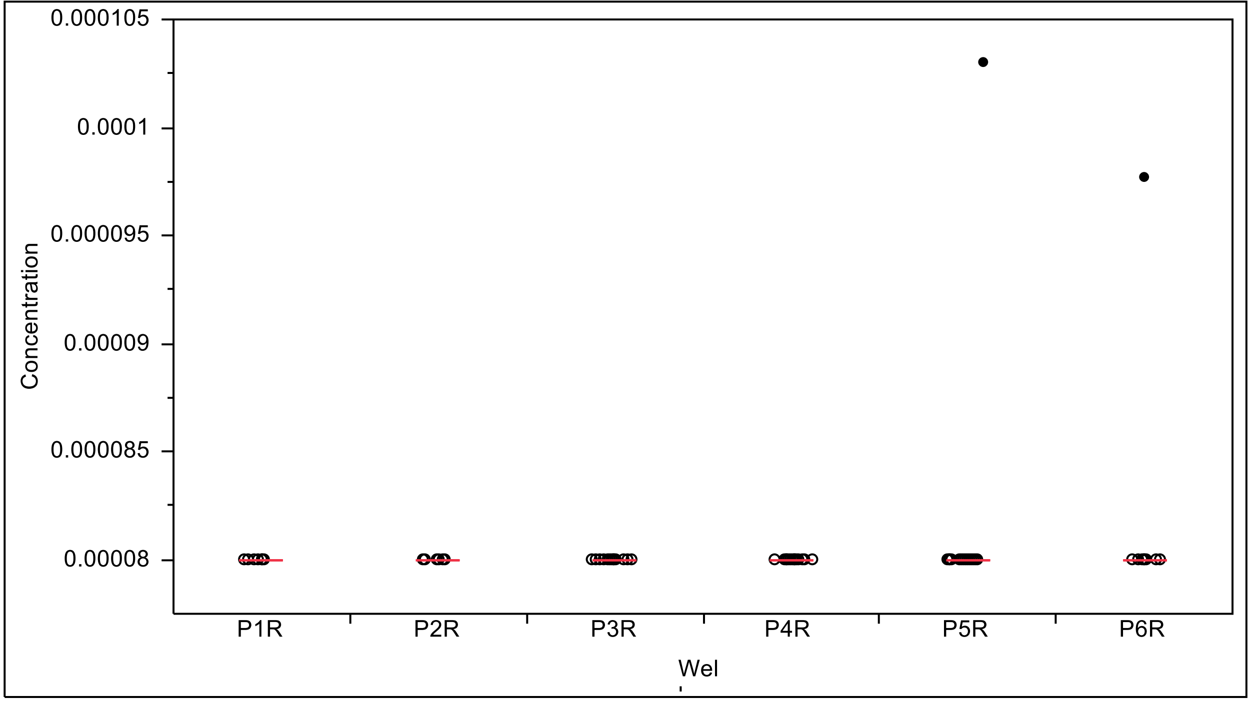
Analyte=Lead, Unit=mg/L



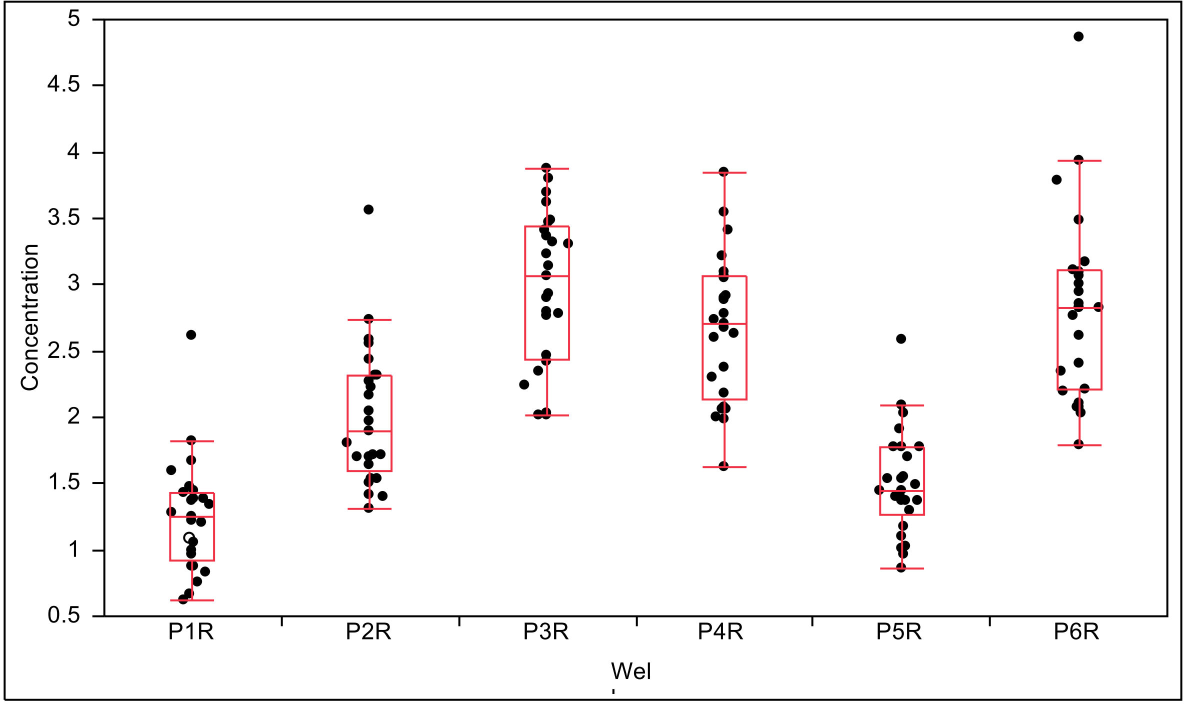
Analyte=Manganese, Unit=mg/L



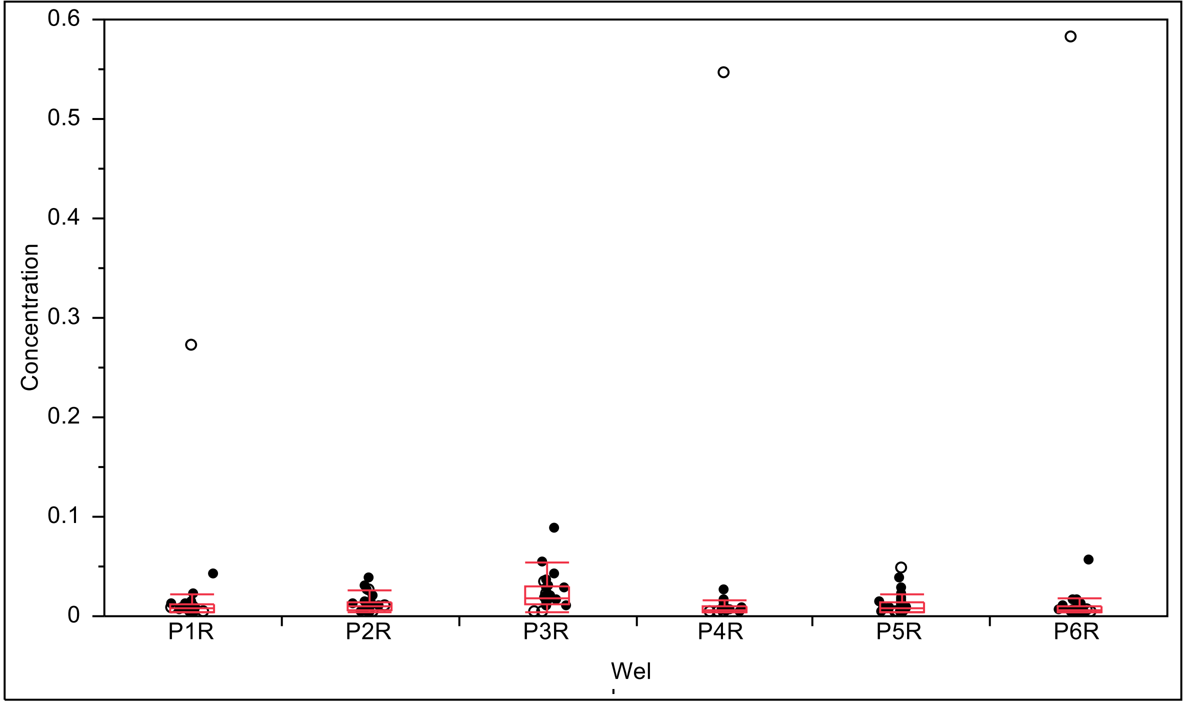
Analyte=Mercury, Unit=mg/L



Analyte=Total Organic Carbon (TOC), Unit=mg/L



Analyte=Total Organic Halides (TOX), Unit=mg/L



Attachment C – Table IV.B.

TABLE IV.B. WASTES MANAGED IN PERMITTED UNITS

No.	*Waste**	*EPA Waste Codes*	*TCEQ Waste Codes*
1	Paint Waste	N/A	279760
2	Food Waste	N/A	
3	Waste Paints	F005, F003, D001	
4	Empty Containers	N/A	2022061 110450
5	Roofing Material	N/A	
6	Light Bulbs	N/A	
7	Oily Sludges	N/A	
8	Wood Chips/Sawdust	N/A	280190 280200
9	Metal Scrap	N/A	270350
10	Paint Booth Arresters	D008, D007	178490
11	Waste Microfilm		181490
12	Wastewater Sludge	N/A	102690
13	Polymer	N/A	110121
14	Plastics	N/A	280270
15	Oily Sand	N/A	0005489
16	Blasting Sand	N/A	0001490
17	Roofing Mastic	N/A	
18	Concrete Curing Compound	N/A	
19	Heavy Metal Contaminated Sludge		140080
20	Contaminated Rags		183480
21	Off Spec Product		185810
22	Filter Cartridges		279760

TABLE IV.B. WASTES MANAGED IN PERMITTED UNITS (CON'D)

No.	*Waste**	*EPA Waste Codes*	*TCEQ Waste Codes*
23	Paint Chips		
24	Steel Grit	N/A	
25	Ashes From Burned Lacquer Stripper		
26	Waste Pesticides and Herbicides		980480
27	Waste Paint Related Material	F005, F003, D001	910650
28	Waste Tar	N/A	180360
29	Latex Paint		180450
30	Boiler Treatment Chemicals		102660
31	Seasonings - Solid	N/A	180450
32	Fiberglass	N/A	280280
33	Waste Corrosive Liquid	D002	978400
34	Waste Flammable Liquid	D001	910100

*All these wastes listed in the Table were historically managed and land filled in the unit.

Attachment D – TCEQ NFA for Groundwater at Former Wood Preserving Area

Bryan W. Shaw, Ph.D., *Chairman*
Carlos Rubinstein, *Commissioner*
Toby Baker, *Commissioner*
Zak Covar, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 4, 2012

Mr. Kirk Foster
Manager, Environmental Branch
kirk.foster@tdcj.state.tx.us
Texas Department of Criminal Justice

Re: Approval of *Annual O&M Groundwater Monitoring Report*, dated April 6, 2012, and No Further Corrective Action for Groundwater at the Former Wood Preserving Area;
Texas Department of Criminal Justice (TDCJ) Ellis 1 Unit; TCEQ SWR No. 71331; TCEQ Hazardous Waste Permit No. 50361; Agreed Order Issued August 31, 1989; EPA ID No. TXD980747893; CN601550650/RN102315199

Dear Mr. Foster:

The Texas Commission on Environmental Quality (TCEQ) has received your publisher's affidavit stating that TDCJ published notice of proposed corrective action completion on July 8, 2012 in the Huntsville Item. The purpose of the notice was to give members of the public the opportunity to comment on your proposal to discontinue the corrective action for groundwater at the Former Wood Preserving Area (Site) as recommended in the *Annual O&M Groundwater Monitoring Report* (Report). The Report includes a summary and evaluation of corrective action activities (cap inspections and maintenance, and groundwater sampling) completed to determine the effectiveness of soil and groundwater controls at the Site under Risk Reduction Standard No. 3. The TCEQ did not receive any comments during the sixty day comment period.

Based on our review, the TCEQ approves the Report as well as the Report recommendations to plug and abandon the monitoring wells and discontinue groundwater corrective action at the Site. However, you have a continuing obligation to maintain the soil cap at the Site based on the results of quarterly inspections and submit post-closure care reports summarizing the soil cap inspection and maintenance by March 1st of each calendar year in accordance with the Revised Response Action Plan (March 2007) and Addenda (August 3, 2007) and 30 Texas Administrative Code §335.565.

Please note that it is the continuing obligation of persons associated with a site or facility to assure that industrial solid waste and/or municipal hazardous waste are managed in such a way that it does not cause a discharge of waste or an imminent threat of discharge, nor a nuisance or an endangerment to either human health or the environment as required by 30 TAC §335.4. Be advised that the burden remains upon the owner to take necessary and authorized action to correct such conditions whenever they exist.

Questions concerning this letter should be directed to me at (512) 239-2362. When responding by mail, please submit an original and one copy of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted to the local TCEQ Region Office. The information in the reference block should be included in all submittals.

Sincerely,

Mark Arthur

Mark Arthur, P.G., Project Manager
Corrective Action Team, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

MA/jdm

cc: Ms. Nicole Bealle, Waste Program Manager, TCEQ Region 12, Houston

SECTION VII

CLOSURE AND POST-CLOSURE PLANS

VII. Closure and Post-Closure Plans

Provide all Part B responsive information i
format organize your submittal using the [Format of Hazardous Waste permit Application and Instructions](#).

For multiple units provide an include all Part B responsive information in a separate Appendix for each unit.

Submit a full closure plan and post-closure plan, if applicable, which contains all the information required by 30 TAC 335.8, 335.169, 335.172, 335.174, 335.177, 335.178, 335.551-335.569, 30 TAC Chapter 350, 40 CFR 264.112, 264.118, 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.575, 264.601, 264.603, 264.1102, 270.14(b)(13), 270.17(f), 270.18(h), 270.20(f), 270.21(e), 270.23(a)(2) & (3), and 270.26(c)(16) where applicable. The owner of property on which an existing disposal facility is located must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage hazardous wastes and its use is restricted (see 30 TAC 335.5). For hazardous waste disposal units that were closed before submission of the application, the applicant should submit documentation to show that plats and notices required under 40 CFR 264.116 and 264.119 have been filed.

A. Closure -RESERVED

B. Closure Cost Estimate (including contingent closure) [30 TAC 335.178, 40 CFR 264.142]

RESERVED

C. Post-closure

This section applies to owners or operators of all hazardous waste disposal facilities. This section also applies to certain waste piles, tanks and surface impoundments from which the owner or operator intends to remove wastes at closure but which are required to have contingent post-closure plans.

For Landfills, and Waste Piles, Surface Impoundments, and Tanks Closed as a Landfill

1. Provide as-built plans and specifications for the final cover system, individually for each unit that is sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request.

2. Complete the following tables, as applicable:

a. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type.

b. Table V.G.3. - Landfill Liner System and spe
landfill.

c. Table V.G.4. - Landfill Leachate Collection System used for the landfill.

d. Table V.E.1 - Waste Piles and list the waste piles covered by this application. List the waste managed in each unit and the rated capacity or size of the unit.

e. Table V.E. 3 - Waste Pile Liner System and specify the type of containment/liner system.

f. Table V.D.1 - Surface Impoundments and list the surface impoundments, covered by this application, to be permitted. List the waste(s) managed in eac the rated capacity or size of each unit.

g. Table V.D. 6. - Surface Impounc impoundment to be permitted.

h. Table V.C. Tanks and Tank Systems.

Post-closure care of each hazardous waste management unit must continue for 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems in addition to the maintenance and monitoring of waste containment systems. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which hazardous waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information.

1. The post-closure care plan for a landfill or of a surface impoundment, waste pile, miscellaneous unit, or tank system closed with wastes or waste constituents left in place, or closed under a contingent closure plan, must demonstrate compliance with 30 TAC 335.174(b).
2. The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period; and
3. A discussion of the future use of the land associated with each unit.
4. For landfills, surface impoundments, waste piles, and land treatment areas closed under interim status, submit the required documentation of 40 CFR
5. Landfills, surface impoundments, waste piles and land treatment areas that received hazardous wastes after July 26, 1982 or for which closure was certified after January 26, 1983 must be included in post-closure care plans unless they have been determined to have closed by removal equivalent to the closure standards in 40 CFR 264 Subpart G. If such a demonstration has been made pursuant to 40 CFR 270.1(c)(5), but an equivalency determination has not been made, please submit a copy of the demonstration documentation. If an equivalency determination has been made pursuant to 40 CFR 270.1(c)(6), applicant should submit a copy of the determination. Complete Table VII.C.5. - Land-Based Units Closed Under Interim Status for all land based units closed

D. Post-closure Cost Estimate [40 CFR 264.144]-RESERVED

This section regarding post-closure cost estimate applies to owners or operators of all hazardous waste disposal facilities, except state and federal agencies, and certain waste piles, tank systems, and surface impoundments from which the owner or operator intends to remove wastes at closure, but which are required to have contingent closure and post-closure plans. A detailed estimate, in current dollars, of the annual cost of monitoring and maintenance of the facility in accordance with the applicable post-closure regulations must be included in the report. The TCEQ has published Technical Guideline No. 10 for calculating post-closure costs, which should be consulted. Costs should be developed in detail for 30 years of post-closure care activities to be conducted by a third party, for each applicable unit.

1. The applicant should submit details of item costs and number of each item for off-site disposal of leachate and bailed monitor well water, labor and supervision, monitor well sampling and analyses, inspection and repair of the cap(s), mowing and re-seeding of the vegetative cover, maintaining site security, etc. Provide an itemized cost estimate on Table VII.D. - Unit Post-Closure Cost Estimate for complete, third party permitted facility post-closure care.
2. As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.
3. Total annual cost of post-closure care for the facility including costs of contingent post-closure care should be multiplied by 30 years.

E. Closure and Post-Closure Cost Summary -RESERVED

APPENDIX VII.C

FORMER LANDFILL POST CLOSURE PLAN

Appendix VII.C
Former Landfill Post-Closure Care Plan

Table of Contents

1.0 General Information

This post-closure care plan has been prepared to provide guidance to the Texas Department of Criminal Justice (TDCJ) – Ellis Unit for post-closure care of the Former Landfill (FLF). This post-closure care plan is prepared in accordance with (40 CFR §264 Subpart G and 40 CFR §264.144) and state (30 TAC §335.174) requirements.

TDCJ is a correctional facility housing approximately 2,500 inmates in Walker County, Texas. The mailing address to the facility is P.O. Box 4011, Huntsville, Texas 77342. TDCJ has been assigned a hazardous waste generator number by the U.S. Environmental Protection Agency (EPA) TXD980747893 and a Texas Commission on Environmental Quality (TCEQ) Hazardous Waste Permit Number HW-50361.

The FLF has been closed and will be maintained during the post-closure period in a manner that minimizes the need for maintenance, and minimizes or eliminates the potential for hazardous waste and hazardous constituents to contaminate the ground or surface waters or the atmosphere.

2.0 Post-Closure Period

The post-closure period for the FLF will extend for at least 30 years after closure. The FLF was capped in 1989 and was formally closed in 2012. Post-closure care is currently proposed to extend to December 2042.

3.0 Post-Closure Inspections

The FLF will be inspected quarterly during the post-closure care period. Post-closure inspections will evaluate the condition of the system components. Post-closure inspections include the following activities:

- Clay-rich soil structures, including covers and caps, will be inspected to verify that no cracks or deep erosions have developed, that deleterious settlement has not occurred, and that deep-rooted vegetation or burrowing animals have not penetrated the cap;
- Construction activities;
- Access road inaccessibility;
- Vegetative cover is established with no bare patches; and
- Any stormwater conveyances are clear of obstructions.

In the event of heavy rains, the landfill will be inspected for flood damage. If heavy rains have not occurred, flood damage inspections will occur with the quarterly inspection. Mowing will take place quarterly or when the grass is knee-high whichever is more frequent.

During quarterly groundwater monitoring events, wells will be inspected for the following items:

- Clogged well screens;
- Damage to the surface casing and/or pad; and
- Silting.

Locking devices are not required for the monitoring wells as the facility is securely fenced and guarded. The wells are not accessible to the public, and off-site personnel are escorted when on the property.

Security personnel inspect the fences and gates daily and will note any damage to fences or gates and any missing or damaged signs.

Cap benchmarks will be resurveyed every five years.

4.0 Post-Closure Maintenance

Because of the design of the closure cap, only routine post-closure maintenance is usually required (e.g., mowing grass as needed, maintaining cover after storms, etc.). These and other less routine activities are evaluated as part of the regular inspections. Based on the results of these inspections, the following maintenance activities are performed as required:

- Stormwater conveyances will be maintained in good functional condition;
- If evidence of ponding, settling, subsidence or disruption of established drainage patterns is observed additional cover materials or vegetation, if applicable, will be applied to maintain proper slope and cover integrity;
- If damage to the grass cover is discovered, the areas will be reseeded, fertilized, and watered until the grass covers are re-established; and
- Routine and other maintenance activities are performed as needed. If an inspection reveals that a maintenance activity is required to correct a problem, that action is implemented as soon as practicable.

5.0 Amendment of Plan

The post-closure plan will be maintained and updated as necessary by TDCJ Environmental Branch Manager.

The post-closure care contact is:

Jason Pierce
P.O. Box 4011
Huntsville, Texas 77342-4011

Telephone: 936-437-7247
Fax: 325-223-0294

6.0 Post-Closure Cost Estimates

Per 40 CFR 265.140(c) and 30 TAC 335.152(a)(6), state agencies are exempt from the requirement to provide cost estimates and financial assurance for hazardous waste facilities.

7.0 Reporting

Reports and documentation required by the Part B Permit will be provided to TCEQ as indicated in the permit.

Additionally, post-closure care notices and certifications required by 40 CFR §264.119 through §264.120 will be performed. Within 60 days of completing the post-closure care period, TDCJ will provide the TCEQ with a certification that the post-closure care period was performed in accordance with the specifications in the approved post-closure plan.

SECTION VIII

FINANCIAL ASSURANCE – NOT APPLICABLE

SECTION IX

RELEASES FROM SOLID WASTE UNITS AND CORRECTIVE ACTION

TABLE OF CONTENTS

TDCJ became a Conditionally Exempt Small Quantity Generator (CESQG) of hazardous waste in 2005. In addition, the TDCJ facility is non-industrial and, therefore, is no longer required to maintain a Notice of Registration (NOR) for actively generated and managed wastes.

[a] This area did not contain solid or hazardous waste and the unit checklist has been removed. The unit is listed to provide historical traceability.

[b] The areas used for irrigation and application are indicated on the topographic map. Not all areas are used at the same time.

TABLE OF CONTENTS (Continued)

[a] This area did not contain solid or hazardous waste and the unit checklist has been removed. The unit is listed to provide historical traceability.

Preliminary Review Facility Checklist

Facility: **Texas Department of Criminal Justice – Ellis Unit** City: **Huntsville**

ISW Reg No: **71331** Date: **1/11/13**

Permit No: **50331** Reviewer:

EPA ID No: **TXD980747893**

A. Waste Management Units:

1. RCRA Regulated Units:

NoR No.	Description	Status
001	Unit Maintenance Container Storage Area	Inactive
003	Bus Barn Container Storage Area	Inactive
004	Penta Plant	PCC
007	Area Operations Container Storage Area	Inactive
008	Former Landfill/Sawdust and Lacquer Burn Pit	PCC
009	Penta Plant Tank	Inactive

2. Solid Waste Management Units:

NoR No.	Description	Status
002	Woodshop Waste Pile	Active[a]
005	Scrap Yard	
006	Container Storage Area	Active[a]
H	Used construction equipment oil	Inactive
I	Asbestos containing material	Active[a]
J	Wastewater Treatment Ponds	Inactive
K	Poultry Land Application	Active[a]
L	Domestic waste sludge	Active[a]
M	Swine Feeding Lagoons	Active[a]
N	Swine Feeding Irrigation	Active[a]
O	Swine Feeding Land Application	Active[a]
P	Swine Farrowing Lagoon	Active[a]
Q	Swine Farrowing Irrigation	Active[a]
R	Swine Farrowing Land Application	Active[a]
S	Sludge Disposal Land Application	Active[a]

[a] TDCJ-Ellis Unit became a Conditionally Exempt Small Quantity Generator (CESQG) in 2005. Therefore, these units are listed as "Inactive" on the Notice of Registration but are actually in use and have been listed as "Active" in this section.

B. Reviewed Documents:

3. RCRA: Part A _____
   Part B _____
   Permit _____
4. CERCLA: None
5. Inspection Reports: See Appendix I-C.
6. Enforcement Actions: Agreed Order dated September 13, 1989.
7. Exposure Information: None.
8. Other Information:

C. Summary:

D. Recommended Action:

NOR No. 004 was investigated per the September 13, 1989 Agreed Order. The investigation has been completed and the groundwater is naturally attenuating. Groundwater monitoring is no longer necessary per the approval letter from TCEQ, 10/4/2012. The Former Hazardous Landfill is closed and is in Post-Closure Care. TDCJ became a CESQG in 2005. No further action is required at this facility.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: Texas Department of Criminal Justice – Ellis Unit
City: Huntsville

ISW Reg No: 71331
Date: 12/12

Permit No: 50361
Reviewer:

EPA ID No: TXD980747893

I. Waste Management Unit:

A. NOR No: 001

B. Description: Unit Maintenance Container Storage Area

C. Dates of Operation: 1988 to 2005 (CESQG)

II. Wastes Previously Managed: Contaminated Rags (183480), Filters (279720), Containers (279450), Plant Refuse (279760), waste paints, empty spray cans, mineral spirits, corrosives, expired chemicals

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: The area is under cover in an enclosed building. Access to the building is controlled and requires a key. The area drains to the east, where the construction equipment staging area is located. East of the staging area is a surface drainage ditch that connects with the Turkey Creek Ditch that leads to the Trinity River.

V. Summary: Historically, NOR 71331 Unit # 001 was an enclosed, locked, covered, concrete floored maintenance shop where miscellaneous non-hazardous and hazardous wastes containers were stored. This area is inactive. TDCJ became a Conditionally Exempt Small Quantity Generator (CESQG) in 2005.

VI. Recommended Action: TDCJ became a CESQG in 2005. No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 002

B. Description: Woodshop Waste Pile

C. Dates of Operation: 1967 to present

II. Wastes Managed: Sawdust/Wood (280190)

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north to agricultural fields and is completely enclosed by the flood control levee. The Trinity River is located 2-1/8 miles north outside the flood control levee.

V. Summary: NOR 71331 Unit # 002 is a non-hazardous sawdust waste-pile which is accumulated at the woodshop in a box trailer. The sawdust is disposed of at a municipal landfill.

VI. Recommended Action: TDCJ became a CESQG in 2005. No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 003

B. Description: Bus Barn Container Storage Area

C. Dates of Operation: 1988 to 2005 (CESQG)

II. Wastes Previously Managed: Paint Waste (110650), Paint Thinner (910110), Off Spec Product (185810), Paint Waste (91065), Solvents (910100), Off Spec Product (98587)

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: The CSA is located in the bus barn. The area is curbed and covered. The area drains to the west to an agricultural pasture. Northwest of the area is the Turkey Creek Ditch that leads to the Trinity River.

V. Summary: Historically, NOR 71331 Unit #003 was an enclosed, locked, covered, concrete floored bus barn where miscellaneous non-hazardous and hazardous wastes containers were stored. This area is no longer used to store any waste.

VI. Recommended Action: TDCJ became a CESQG in 2005. No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 004

B. Description: Penta Plant

C. Dates of Operation: 1964 to 1988

II. Wastes Managed: Diesel and Pentachlorophenol

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north into agricultural fields. The agricultural fields are enclosed in the flood control levee.

V. Summary: The penta plant includes an area that is an inactive and abandoned wood treatment site. Groundwater contaminated with diesel and pentachlorophenol was recovered and previously stored in a double walled steel tank at the site. Groundwater recovery corrective actions were completed in 2003 (see NOR No. 009) and the tank was removed.

VI. Recommended Action: The area was under investigation per the September 13, 1989 Agreed Order. The investigation has been completed and the groundwater is naturally attenuating. The area is protected using an engineered clay cap cover system and is in post-closure care which includes cap inspection and security inspection. Groundwater monitoring is no longer necessary per the approval letter from TCEQ, October 4, 2012. The groundwater wells will be plugged and abandoned.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 005 (SWMU E)

B. Description: Scrap Yard

C. Dates of Operation: 1988 to present

II. Wastes Managed: Scrap tires, machine metal, empty drums, scrap metal, and cooking pots

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north to agricultural fields and is completely enclosed by the flood control levee. The Trinity River is located 2-1/8 miles north outside the flood control levee.

V. Summary: NOR 71331 Unit # 005 is located in the farm shop area. Scrap yard is used to store non-hazardous materials salvaged from the unit prior to recycling or disposal. NOR indicates that waste pain solvent may have been stored at this unit; however, according to facility personnel, these types of wastes were never stored at this unit.

VI. Recommended Action: TDCJ became a CESQG in 2005. No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 006

B. Description: Container Storage Area at the Old Syrup Mill

C. Dates of Operation: 1988 to present

II. Wastes Managed: Waste paint solvent and organic paint

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north into agricultural fields. The agricultural fields are enclosed in the flood control levee.

V. Summary: NOR 71331 Unit #006 is a covered, curbed concrete floor, caged area at the old syrup mill currently used to store paint waste and paint related waste from maintenance, woodshop and busbarn.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 007 (SWMU C)

B. Description: Area Operations Container Storage Area

C. Dates of Operation: 1970 to 2005 (CESQG)

II. Wastes Managed: This area historically stored expired chemicals, HTH, and boiler chemicals. The area is inactive.

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Regional Operations and Management container storage area. A covered, enclosed, locked, concrete floor, and curbed area. Surface drainage in the area is to the east where the construction equipment staging area is located. East of the staging area is a surface drainage ditch that connects with the Turkey Creek Ditch that leads to the Trinity River.

V. Summary: NOR 71331 Unit # 007 was a covered, enclosed, locked, concrete floor, and curbed metal building in the regional operations and maintenance area where non-hazardous and hazardous wastes were stored.

VI. Recommended Action: TDCJ became a CESQG in 2005. No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361 HW-50361 Permit Unit No. 1	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 008 (SWMU A) [SWMU B, discussed later, is also part of NOR No. 008]

B. Description: Landfill

C. Dates of Operation: 1976 to 1988

II. Wastes Managed:

No.	Waste	EPA Hazardous Waste Numbers[a]	TCEQ Waste Form Codes and Classification Codes[a]
1	Paint Waste	N/A	279760
2	Food Waste	N/A	
3	Waste Paints	F005, F003, D001	
4	Empty Containers	N/A	2022061, 110450
5	Roofing Material	N/A	
6	Light Bulbs	N/A	
7	Oily Sludges	N/A	
8	Wood Chips/Sawdust	N/A	280190, 280200
9	Metal Scrap	N/A	270350
10	Paint Booth Arresters	D007, D008	178490
11	Waste Microfilm		181490
12	Wastewater sludge	N/A	102690
13	Polymer	N/A	110121
14	Plastics	N/A	280270
15	Oily Sand	N/A	0005489
16	Blasting Sand	N/A	0001490
17	Roofing Mastic	N/A	
18	Concrete Curing Compound	N/A	
19	Heavy Metal Contaminated Sludge		140080
20	Contaminated Rags		183480
21	Off Spec Product		185810
22	Filter Cartridges		279760
23	Paint Chips		
24	Steel Grit	N/A	

No.	Waste	EPA Hazardous Waste Numbers[a]	TCEQ Waste Form Codes and Classification Codes[a]
25	Ashes from Burned Lacquer Stripper		
26	Waste Pesticides and Herbicides		980480
27	Waste Paint Related Material	D001, F003, F005	910650
28	Waste Tar	N/A	180360
29	Latex Paint		180450
30	Boiler Treatment Chemicals		102660
31	Seasonings – Solid	N/A	180450
32	Fiberglass	N/A	280280
33	Waste Corrosive Liquid	D002	978400
34	Waste Flammable Liquid	D001	910100

[a] The wastes listed in the Table were historically managed and may or may not have been land filled in the unit.

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: The Landfill is closed and the cap prevents air dispersal of pollutants. Detection monitoring is used to determine if the former landfill (FLF) has impacted groundwater in the area. To date, no releases have been detected.

V. Summary: NOR 70331, Unit # 008 was a municipal solid waste landfill containing < 5% hazardous waste. Landfill was covered with a soil cover in 1988 and meets closure criteria.

VI. Recommended Action: The FLF has been capped and no material has been introduced since 1988. Groundwater monitoring and post-closure care will continue as required by the permit.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 008 (SWMU B)

B. Description: Sawdust and Lacquer Burn Pit

C. Dates of Operation: 1967 to 1986

II. Wastes Managed: Sawdust and Furniture lacquer

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: The pits were located in the former landfill. The sawdust and lacquer were placed in the FLF and burned. Pits are no longer present. Surface drainage in the area is to the north to agricultural fields. The area is completely enclosed in the flood control levee. Detection monitoring is used to determine if the FLF has impacted groundwater in the area. To date, no releases have been detected. The Trinity River is located 2-1/8 miles north outside the flood control levee.

V. Summary: NOR 71331 Unit # 008 was a pit used for burning sawdust and lacquer brickets. Hazardous waste was ignitable. No known additional contaminants.

VI. Recommended Action: No further action as this is part of the FLF (NOR No. 008) which is in detection monitoring as required by the permit.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: 009 (SWMU D)

B. Description: Penta Plant Tank

C. Dates of Operation: 1999 to 2003

II. Wastes Managed: Diesel and Pentachlorophenol

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north into agricultural fields. The agricultural fields are enclosed in the flood control levee.

V. Summary: A double walled steel tank on a concrete pad where captured diesel and pentachlorophenol recovered groundwater was stored prior to treatment and disposal.

VI. Recommended Action: The area was under investigation per the September 13, 1989 Agreed Order. The investigation has been completed and the groundwater is naturally attenuating. The tank has been removed from service and was triple rinsed and sampled to verify complete decontamination. The tank will be used in another area or recycled.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: H

B. Description: Used Oil Tank (520 gal.)

C. Dates of Operation: 1999 to Present

II. Wastes Managed: Used construction equipment oil

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: A curbed area. Surface drainage in the area is to the east. East of the area is a surface drainage ditch that connects with the Turkey Creek Ditch that leads to the Trinity River.

V. Summary: An above ground steel tank in secondary containment used to store non-hazardous waste prior to off-site recycling at a registered used oil facility.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: Texas Department of Criminal Justice – Ellis Unit
City: Huntsville

ISW Reg No: 71331
Date: 12/12

Permit No: 50361
Reviewer:

EPA ID No: TXD980747893

I. Waste Management Unit:

A. NOR No: I

B. Description: Asbestos Roll-Off Area

C. Dates of Operation: 1985 to Present

II. Wastes Managed: Asbestos containing material

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: A covered, enclosed, locked box which prevents air dispersal. Surface drainage in the area is to the north where an old gravel pit is located. The area drains to the north to the Trinity River.

V. Summary: A covered, enclosed, locked metal box where asbestos containing material wastes are stored prior to transport off-site for disposal. This area only has roll-offs when renovation activities are underway.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: J

B. Description: Wastewater Treatment Ponds

C. Dates of Operation: 1965 to 1996

II. Wastes Managed: Domestic and animal operations wastewater

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north. North of the area ponds is the Turkey Creek Ditch that leads to the Trinity River.

V. Summary: Earthen impoundments which were used for the biological degradation of human and animal wastes. This area was replaced by the drying bed system (SWMU L).

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: K

B. Description: Poultry Land Application

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal (poultry) operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north into agricultural fields. The agricultural fields are enclosed in the flood control levee.

V. Summary: Sixty-six and a half acres of pasture used for the land application of a poultry laying operation at the unit. The poultry operation is a dry waste operation, only dry waste is applied to the land.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: L

B. Description: Sludge Drying Beds

C. Dates of Operation: 1996 to Present

II. Wastes Managed: Domestic waste sludge

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north into the waste water impoundments.

V. Summary: Sludge generated by the waste water treatment plant is dried in concrete drying beds and then loaded into roll-off boxes for disposal.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: Texas Department of Criminal Justice – Ellis Unit

City: Huntsville

ISW Reg No: 71331

Date: 12/12

Permit No: 50361

Reviewer:

EPA ID No: TXD980747893

I. Waste Management Unit:

A. NOR No: M

B. Description: Swine Feeding Lagoon

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal (swine feeder) operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the west into agricultural pastureland. The pastureland drains to a surface ditch which leads to Turkey Creek, which drains to the Trinity River.

V. Summary: An anaerobic lagoon which biologically degrades animal waste.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: N

B. Description: Swine Feeding Irrigation

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal (swine feeder) operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the west into agricultural pastureland. The pastureland drains to a surface ditch which leads to Turkey Creek, which drains to the Trinity River.

V. Summary: Waste water from an anaerobic lagoon that is used for irrigation of 48.6 acres of pasture land.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: O

B. Description: Swine Feeding Land Application

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal (swine feeder) operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the west into agricultural pastureland. The pastureland drains to a surface ditch which leads to Turkey Creek, which drains to the Trinity River.

V. Summary: The land application of dried anaerobic lagoon solids to 142.7 acres of pasture land.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: P

B. Description: Swine Farrowing Lagoon

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal (swine farrowing) operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the southwest into agricultural pastureland. The pastureland drains to a surface ditch which leads to Harmon Creek, which drains to the Trinity River.

V. Summary: An anaerobic lagoon which biologically degrades animal waste.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: Q

B. Description: Swine Farrowing Irrigation

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal (swine farrowing) operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the west into agricultural pastureland. The pastureland drains to a surface ditch which leads to Harmon Creek, which drains to the Trinity River.

V. Summary: Waste water from an anaerobic lagoon that is used for irrigation of 31.2 acres of pasture land.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: R

B. Description: Swine Farrowing Land Application

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal (swine farrowing) operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the west into agricultural pastureland. The pastureland drains to a surface ditch which leads to Turkey Creek, which drains to the Trinity River.

V. Summary: The land application of dried anaerobic lagoon solids to 101.2 acres of pasture land.

VI. Recommended Action: No further action.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Texas Department of Criminal Justice – Ellis Unit	City:	Huntsville
ISW Reg No:	71331	Date:	12/12
Permit No:	50361	Reviewer:	
EPA ID No:	TXD980747893		

I. Waste Management Unit:

A. NOR No: S

B. Description: Sludge Disposal Land Application

C. Dates of Operation: 1965 to Present

II. Wastes Managed: Animal operations waste

III. Evidence of Release: NONE

IV. Pollutant Dispersal Pathways: Surface drainage in the area is to the north into agricultural fields. The agricultural fields are enclosed in the flood control levee.

V. Summary: One hundred acres of pasture used for the land application of animal operation at the unit.

VI. Recommended Action: No further action.

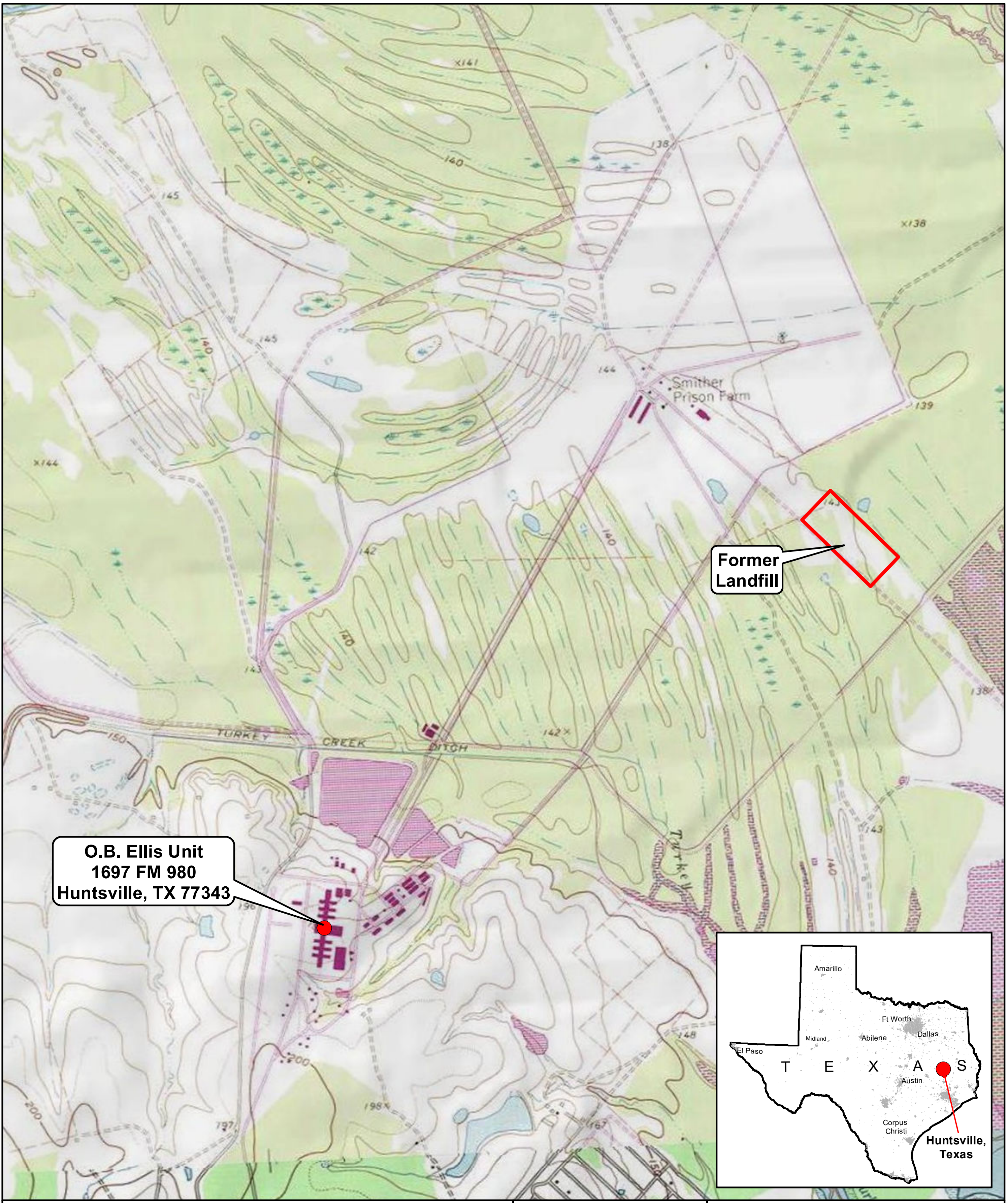
APPENDIX IX

RELEASES FROM SOLID WASTE UNITS AND CORRECTIVE ACTION

Appendix I of Section IX

Facility and SWMU Location Maps

Appendix I-A	Regional and Site Location Map
Appendix I-B	Facility and SWMU Location Maps
Appendix I-C	Inspection Reports Reviewed



N

0 1,000 2,000 4,000

Feet

AECOM

13460 Briarwick Drive,
Suite 200
Austin, TX 78729
Phone: (512) 454-4797
Fax: (512) 419-5474

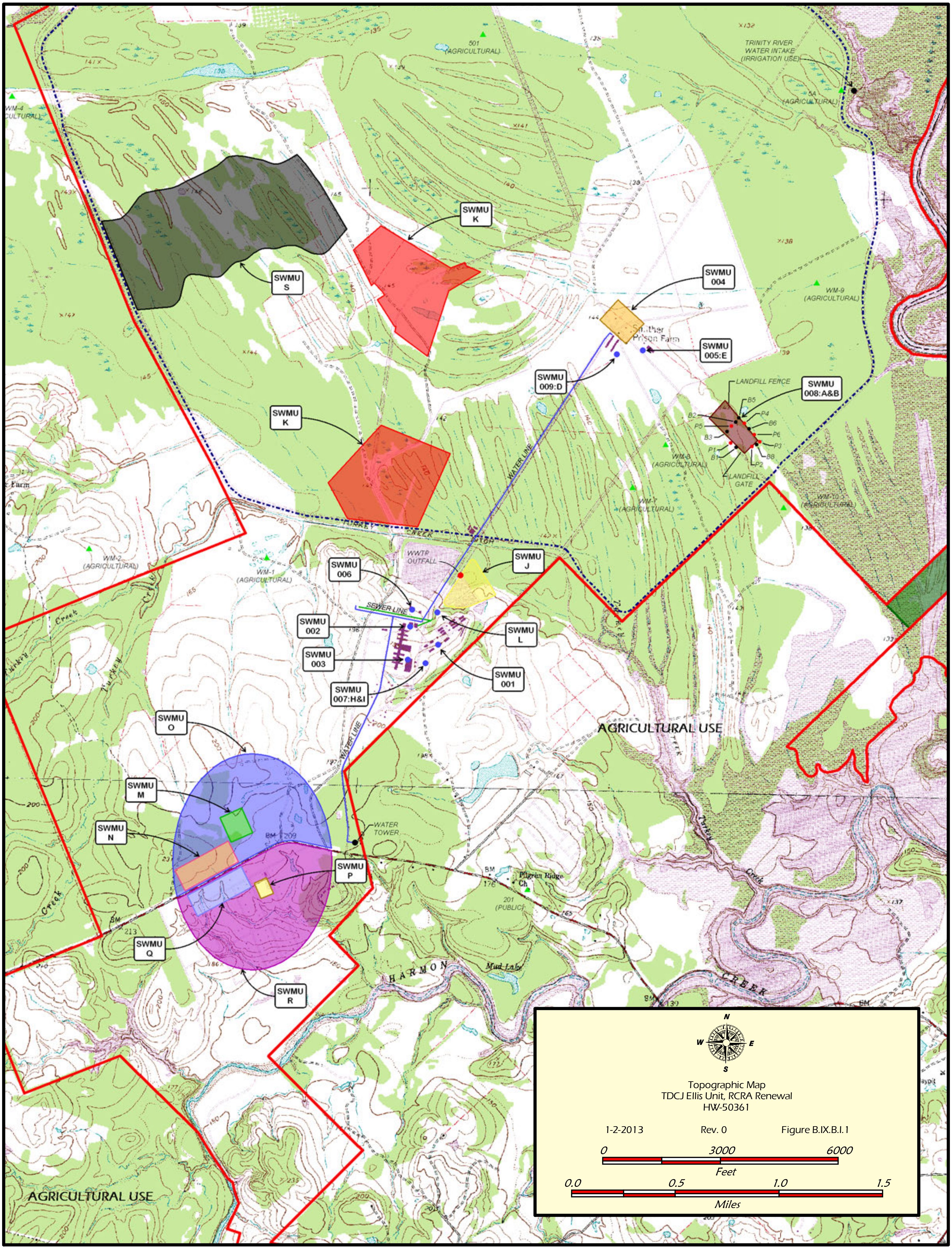
Title:

Site Location Map

Project: RCRA Renewal HW-50361
Ellis Unit
Huntsville, Texas

Scale: As Shown	Drawn by: KPL	Date: 7/1/2024	Client: **Texas Department of Criminal Justice**
	Chk'd by: JST	Date: 7/1/2024	Project No.: 60726186 · File Name: Att I-A Site Loc.mxd · Attachment: I-A

Path: \\na.aecomnet.com\lfs\AMER\Austin-USAUS2\DCS\Projects\ENV\TDCJ\TDCJ Ellis\HW Permit Renewal\2024 Renewal\09_GIS\MXD\Att I-A Site Loc.mxd



Topographic Map
TDCJ Ellis Unit, RCRA Renewal
HW-50361

1-2-2013 Rev. 0 Figure B.IX.B.I.1

Table IX.A.3-1
Inspection Reports Reviewed

Date	Topic
3/22/74	Correspondence Ellis I landfill
6/19/81	Site Inspection Report
7/3/81	Inspection Report – Municipal solid waste disposal facility
12/4/81	Site Inspection Report
1/14/82	Telephone/visit memo to the file
1/21/82	Inspection Report – Municipal solid waste disposal facility
4/12/82	Disposal of Dry Lightning G (sulfuric acid dry form)
5/10/82	Site Inspection Report
7/13/82	Inspection Report – Municipal solid waste disposal facility
9/13/82	Site Inspection Report
12/2/82	Inspection Report – Municipal solid waste disposal facility
undated	Inter office memo
12/15/82	Application received acknowledgement
1/4/83	Site inspection memo – Jim Candler
1/6/83	Application notification
1/7/83	Notice of filing of application no. 1566
1/11/83	Inter office memo – application fee
1/28/83	Inter office memo – geologic discussion
2/28/83	Site Inspection
4/13/83	Inspection Report – Municipal solid waste disposal facility
4/18/83	Telephone/Visit memo to the file – status of application
9/23/83	Site Inspection Report
11/10/83	Inspection Report – Municipal solid waste disposal facility
11/21/83	Onsite incinerator application requirement
1/26/84	Status of permit application
2/15/84	Inspection Report – Municipal solid waste disposal facility
1/30/84	Site Inspection Report
6/1/84	Inspection Report – Municipal solid waste disposal facility
4/10/84	Site Inspection Report
7/31/84	Telephone/Visit memo to the file – Hazardous waste training for generators
8/29/84	Outdoor burning approval
11/28/84	Permit application no. 1566 notice
12/3/84	Request to submit Part B of Permit Application
12/4/84	Notice of filing for application no. 1566
12/27/84	Telephone/Visit memo to the file – status of permit application
12/20/84	Withdrawal of permit application no. 1566
12/27/84	Surveillance and enforcement division…comments describes scrap yard
12/31/84	Site Inspection Report
1/4/85	Notice of filing of application no. 1566

Date	**Topic**
2/4/85	Inspection Report – Municipal solid waste disposal facility
2/14/85	Application update
7/1/85	New permit application request
7/31/85	Inspection Report – Municipal solid waste disposal facility
6/21/85	Site Inspection Report
11/19/85	Inspection Report – Municipal solid waste disposal facility
10/24/85	Site Inspection Report
10/28/85	Surveillance and enforcement division…comments describes condition of landfill area
8/13/86	Licensing and proper operation of TDC landfills
10/30/86	Deposit of revenue from sale of public information per open records act
10/30/86	TDC Resource recovery incinerators
1/8/87	Inspectors field report
2/23/87	Inspection Report – Municipal solid waste disposal facility
5/14/87	Landfill bill and payment information
8/30/87	Inspectors field report
1/13/88	Inspection Report – Municipal solid waste disposal facility
10/14/87	Inspection Report – Municipal solid waste disposal facility
11/6/87	Inspectors field report
3/21/88	Inspection Report – Municipal solid waste disposal facility
6/88	Inspectors field report
5/3/88	Billing Notice
7/13/88	Billing Notice
10/7/88	Inspectors field report – Landfill closed
11/22/88	Final topography and grades for the Ellis I landfill transmittal letter
12/8/88	Ellis I landfill closure information
2/2/89	Inspection Report – Municipal solid waste disposal facility
4/25/89	Acknowledgement of receipt of deed records
2/27/89	"Affidavit to the Public" Deed recordation
9/13/89	Agreed Order
9/15/89	"Affidavit to the Public" Deed recordation
9/18/89	Deed recordation transmittal
1/2/90	Response to ground water monitoring plan
12/6/90	Field Inspectors Report

Appendix II of Section IX

Wastes Managed

Marketing and Supply Company

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS NUMBER: V7770

MSDS DATE: 01-01-02

PRODUCT NAME: #2 DIESEL FUEL

24 HOUR EMERGENCY PHONE : (210) 979-8346

TRANSPORTATION EMERGENCIES: CALL CHEMTREC AT 1-800-424-9300

MSDS ASSISTANCE: (210) 592-4593

MANUFACTURER'S NAME/ADDRESS:
VALERO MARKETING & SUPPLY CO.
P.O BOX 696000
San Antonio, Texas 78269-6000.

CHEMICAL NAME: Diesel Fuel, No.2 **CAS NUMBER:** 68476-34-6

SYNONYMS/COMMON NAMES: This Material Safety Data Sheet applies to the following product descriptions for Hazard Communication purposes only. Technical specifications and formulations vary greatly and are not reflected in this document. Consult specification sheets for technical information.

ULTRA LOW SULFUR DIESEL – Low emission diesel fuels, ≤ 15 parts per million

2. COMPOSITION, INFORMATION ON INGREDIENTS

PRODUCT USE: This product is intended for use as a fuel in engines and heaters designed for diesel fuels, and for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.

DESCRIPTION: Ulta Low Sulfur Diesel fuel is a complex mixture of hydrocarbons which are hydrofinished to remove sulfur. Composition varies greatly and includes C9 to C20 hydrocarbons with a boiling range of about 325-675° F. The following is a non-exhaustive list of common refinery process components, typical percentages, and exposure limits for each.

Component or Material Name	%	CAS Number	ACGIH Limits			OSHA Exposure Limits			
			TLV	STEL	Units	PEL	STEL	C/P	Units
Hydrotreated middle distillate	100	64742-46-7	100*	NA	mg/m3	NA	NA	NA	NA

* NIOSH recommends an exposure limit of 100 mg/m3 for kerosene, which is similar to these components. The ACGIH has proposed an exposure limit of 100 mg/m3 for Diesel Fuel products, but it has yet to be adopted and has been placed on the Notice of Intended Change list.

3. HAZARDS IDENTIFICATION

HEALTH HAZARD DATA:
The major effect of exposure to this product is that it may cause giddiness, headache, central nervous system depression; possible irritation of eyes, nose, and lungs; and dermal irritation. Signs of kidney and liver damage may be delayed. Pulmonary irritation secondary to exhalation of solvent.

HAZARDS OF COMBUSTION PRODUCTS: Carbon monoxide and carbon dioxide can be found in engine exhaust and other forms of hydrocarbon combustion. Carbon Monoxide in moderate concentrations can cause symptoms of headache, nausea, vomiting, increased cardiac output, and confusion. Exposure to higher concentrations of carbon monoxide can cause loss of consciousness, heart damage, brain damage, and/or death. Exposure to high concentrations of carbon dioxide can cause simple asphyxiation by displacing available oxygen. Combustion of this and other similar materials should only be carried out in well ventilated areas.

MEDICAL CONDITION GENERALLY AGGRAVATED BY EXPOSURE: Medical conditions which have the same symptoms and effects as those outlined under the health hazard information section can be aggravated by exposure to this product.
MEDICAL LIMITATION: N/A

ROUTES OF EXPOSURE

INHALATION: Irritation of the upper respiratory tract and eyes, with possible euphoria, dizziness, headache, discoordination, ringing in the ears, convulsions, coma, and respiratory arrest in extreme cases.

SKIN CONTACT: Defatting of the skin may occur with prolonged or repeated contact. Irritation and burning sensation may occur on exposure to the liquid or mists.
SKIN ABSORPTION: Not significant.
EYE CONTACT: Severe burning sensation with temporary irritation and swelling of lids.
INGESTION: Irritation of the mucous membranes of throat, esophagus and stomach which may result in nausea and vomiting; central nervous system depression may occur, if absorbed (see Inhalation above). If aspirated, chemical pneumonitis may occur with potentially fatal results. Possible kidney and liver damaged may be delayed. (See Notes To Physician in Section 5)

CARCINOGENICITY STATEMENT: Diesel Fuel is not listed as carcinogenic by NTP, OSHA, ACGIH.

4. FIRST AID MEASURES

EYES: Immediately flush eyes with large amount of water for at least 15 minutes holding lids apart to ensure flushing of the entire eye surface. SEEK IMMEDIATE MEDICAL ATTENTION.
SKIN: Wash contaminated areas with plenty of soap and water. A soothing ointment may be applied to irritated skin after thoroughly cleansing. Remove contaminated clothing and footwear. SEEK IMMEDIATE MEDICAL ATTENTION.
INHALATION: Get person out of contaminated area to fresh air. If breathing has stopped resuscitate and administer oxygen if readily available. **SEEK MEDICAL ATTENTION IMMEDIATELY**.
INGESTION: Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. If vomiting occurs spontaneously, keep airway clear. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
NOTES TO PHYSICIAN: Do not induce vomiting, use gastric lavage only. Aspiration of liquid into the lungs could result in Chemical Pneumonitis. Use of Adrenaline is not advised. Treat symptomatically.

5. FIRE AND EXPLOSION DATA

FLASH POINT: 100°F (PM) minimum **AUTOIGNITION TEMPERATURE:** 494°F
FLAMMABLE LIMITS IN AIR: UEL: 5 %
LEL: 0.7 %
EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, foam or water spray. Water may be ineffective in fighting fires of liquids with low flash points, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse vapors and to protect persons attempting to stop a leak.
SPECIAL FIRE FIGHTING PROCEDURES: Pressure-demand, self contained, breathing apparatus should be provided for fire fighters in buildings or confined areas where product is stored.
UNUSUAL FIRE AND EXPLOSION HAZARD: Vapor accumulation is possible, and flashback can occur with explosive force if vapors are ignited.

6. ACCIDENTAL RELEASE MEASURES

If material is spilled, steps should be taken to contain liquid and prevent discharges to streams or sewer systems and control or stop the loss of volatile materials to the atmosphere. Spills or releases should be reported, if required to the appropriate local, state and federal regulatory agencies.

SMALL SPILLS: Remove ignition sources. Absorb spilled material with non-combustible materials such as cat litter, dirt, sand, or petroleum sorbent pads/pillows. Do not use combustible materials like rags, wood chips, or saw dust. Remove contaminated materials to an appropriate disposal container.

LARGE SPILLS: Remove ignition sources. Dike spill area with sand or dirt to contain material and cover sewers/drains. Remain upwind and keep unnecessary people away. Contact trained emergency response team for cleanup. Remove liquid using grounded suction pumps, isolate hazard area and deny entry.

7. HANDLING AND STORAGE INFORMATION

Store only in approved containers. Protect containers against physical damage. Outside or detached storage is preferred. Separate from oxidizing materials. Store in cool, well ventilated area of non-combustible construction away from possible sources of ignition. Keep away from incompatible materials and follow OSHA 29 CFR 1910.106 and NFPA 30 for storage requirements.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION REQUIREMENTS: Work in well ventilated areas using good engineering practices to process, transfer and store. Special ventilation is not required unless product is sprayed or heated. High volume use may require engineering controls.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY: Respiratory protection is not required unless exposure levels exceed 100 mg/m^3. Use NIOSH approved respiratory protection following manufacturer's recommendations where spray, mists, or vapors may be generated above the applicable exposure limits. Supplied air respiratory protection is required for IDLH areas. See 29 CFR 1910.134 for OSHA Respiratory Protection regulations.
EYE: Face shield and goggles or chemical goggles should be worn where mist or spray may be generated, and where splashing occurs. Shower and eyewash facilities should be accessible.
GLOVES: Impermeable protective gloves such as nitrile gloves should be worn during routine handling of this product. Barrier creams may also be appropriate where tactile sensitivity is required.
OTHER CLOTHING AND EQUIPMENT: Clothing contaminated with this product should be removed and laundered before reuse. Items which can not be laundered should be discarded. Allow contaminated items to air dry or hang in a well ventilated area. Spontaneous combustion or fire may result from contaminated materials being placed together before drying.

EXPOSURE MONITORING

BIOLOGICAL: No applicable procedure, breath analysis for hydrocarbons has been suggested.

PERSONAL/AREA: Based on similarity to kerosene, both active and passive monitors employing charcoal adsorption follow by gas chromatography. An average molecular weight of 170 has been suggested as the average value to convert the determined weight of hydrocarbons to ppm. Direct reading colorimetric tubes are available to evaluate short term exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Colorless to straw or red oily liquid with characteristic kerosene-like odor.

VISCOSITY: Spec. dependent, 1.7 - 3.4 cSt @ 104° F	**pH:** NA
BOILING RANGE @ 760 mm Hg: 302-644° F	**SOLUBILITY IN H2O (wt. %):** Insoluble
VAPOR DENSITY (Air=1): 4.5 (kerosene)	**FREEZING POINT:** -51° F
EVAPORATION RATE (BuAc=1): N/A	**VAPOR PRESSURE:** 0.5 mmHg @ 20 °C
SPECIFIC GRAVITY (H_2O=1): 0.865	**% VOLATILES BY VOL.:** NA
BULK DENSITY AT 60° F: 6.8-7.2 lbs.\gal.	**API GRAVIY:** Specification dependent

10. STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY: Under normal conditions, the material is stable. Avoid sources of ignition such as flames, hot surfaces, sparks, and electrical equipment.
INCOMPATIBILITY: Avoid contact with strong oxidizers such as chlorine, concentrated oxygen, and sodium hypochlorite or other hypochlorites.
HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products may include carbon monoxide and carbon dioxide, oxides of sulfur and nitrogen, and other toxic gasses.
HAZARDOUS POLYMERIZATION: Material is not known to polymerize.

11. TOXICOLOGICAL INFORMATION

1. NIOSH recommends that whole diesel exhaust be regarded as a potential occupational carcinogen; follow OSHA and MSHA rules where exhaust fumes may be generated.
2. A life time skin painting study by the American Petroleum Institute has shown that similar naphtha products with a boiling range of 350-700° F usually produce skin tumors and/or skin cancers in laboratory mice. Only a weak to moderate response occurred. The effect to humans has not been determined.
3. Positive results at 2.0 ml/kg and 6.0 ml/kg noted in mutagenesis studies via in-vivo bone marrow cytogenetics assay in rats.

For more detailed information, contact MSDS Assistance at (210) 592-4593.

12. ECOLOGICAL INFORMATION

For detailed information, contact MSDS Assistance at (210) 592-4593.

13. DISPOSAL CONSIDERATIONS

Shipment, storage, disposal, and cleanup actions of waste materials are regulated under local, state and federal rules. Contact the appropriate agencies if uncertain of applicability. Waste product and contaminated material having a flash point below 140°F is considered a hazardous waste. DOT Hazardous Waste Number D001 applies. Consult 40 CFR 262 for EPA disposal requirements.

14. TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME	Combustible Liquid, n.o.s.	Diesel fuel
DOT HAZARD CLASS*	Combustible Liquid	3*
DOT PACKING GROUP (PG)	III	III
I.D. NUMBER	NA1993	NA1993
REQUIRED LABELING	None	Flammable Liquid

* Since this product has a flash point >100°F and no other hazard class applies, it may be reclassed as a Combustible Liquid and NA1993 substituted for the product specific I.D. Number above. Consult 49 CFR 173.120 for specific details.

15. REGULATORY INFORMATION

TSCA (Toxic Substances Control Act) Inventory
Diesel Fuel is listed in the TSCA inventory.

SARA (Superfund Amendments and Reauthorization Act) TITLE III
This product is reportable under SARA Title III, Sections 311 & 312 as a hazardous substance.

Hazard Categories Applicable under 40 CFR 370.2 (SARA Section 311):

Acute Health	Chronic Health	Pressure	Fire	Reactive
Yes	Yes	No	Yes	No

Components listed under 40 CFR 372.65 (SARA Section 313):
This product does not contain chemicals identified as toxic by EPA under 40 CFR Part 372 and is not subject to the reporting requirements of this section.

STATE REGULATIONS:
California Proposition 65: This product does not contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

16. OTHER INFORMATION

NFPA (National Fire Protection Association) Hazard Ratings Codes

Health	Fire	Reactivity	Other
1	2	0	

Based on "Standard System for the Identification of the Fire Hazards of Materials, NFPA No. 704 M

THIS MATERIAL SAFETY DATA SHEET WAS PREPARED BY VALERO MARKETING & SUPPLY CO. IN ACCORDANCE WITH 29 CFR 1910.1200. ALL INFORMATION, RECOMMENDATIONS AND SUGGESTIONS APPEARING HEREIN CONCERNING THIS PRODUCT ARE BASED UPON TESTS AND DATA BELIEVED TO BE RELIABLE, HOWEVER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE SAFETY, TOXICITY AND SUITABILITY FOR HIS OWN USE OF THE PRODUCT DESCRIBED HEREIN. SINCE THE ACTUAL USE BY OTHERS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, THE RESULTS TO BE OBTAINED OR THE SAFETY AND TOXICITY OF THE PRODUCT NOR DOES VALERO MARKETING & SUPPLY CO. ASSUME ANY LIABILITY ARISING OUT OF USE BY OTHERS OF THE PRODUCT REFERRED TO HEREIN. NOR IS THE INFORMATION HEREIN TO BE CONSTRUED AS ABSOLUTELY COMPLETE SINCE ADDITIONAL INFORMATION MAY BE NECESSARY OR DESIRABLE WHEN PARTICULAR OR EXCEPTIONAL CONDITIONS OR CIRCUMSTANCES EXIST OR BECAUSE OF APPLICABLE LAWS OR GOVERNMENT REGULATIONS.

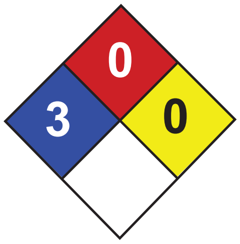
Definitions of Material Safety Data Sheet Terminology

GOVERNMENT AGENCIES AND PRIVATE ASSOCIATIONS

ACGIH - American Conference of Governmental Industrial Hygienists, (private association)
DOT - United States Department of Transportation
EPA - United States Environmental Protection Agency
IARC - International Agency for Research on Cancer, (private association)
NFPA - National Fire Protection Association, (private association)
MSHA - Mine Safety and Health Administration, U.S. Department of Labor
NIOSH - National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services
NTP - National Toxicology Program, (private association)
OSHA - Occupational Safety and Health Administration, U.S. Department of Labor

HAZARD AND EXPOSURE INFORMATION

Acute Hazard - An adverse health effect which occurs rapidly as a result of short term exposure.
CAS # - American Chemical Society's Chemical Abstract service registry number which identifies the product and/or ingredients.
Ceiling - The concentration that should not be exceeded during any part of the working exposure
Chronic Hazard - An adverse health effect which generally occurs as a result of long term exposure or short term exposure with delayed health effects and is of long duration
Fire Hazard - A material that poses a physical hazard by being flammable, combustible, phyrophoric or an oxidizer as defined by 29 CFR 1910.1200
Hazard Class - DOT hazard classification
Hazardous Ingredients - Names of ingredients which have been identified as health hazards
IDLH- Immediately Dangerous to Life and Health, the airborne concentration below which a person can escape without respiratory protection and exposure up to 30 minutes, and not suffer debilitating or irreversible health effects. Established by NIOSH.
mg/m^3 - Milligrams of contaminant per cubic meter of air, a mass to volume ratio
N/A - Not available or no relevant information found **NA** - Not applicable
PEL - OSHA permissible exposure limit; an action level of one half this value may be applicable
ppm - Part per million (one volume of vapor or gas in one million volumes of air)
Pressure Hazard - A material that poses a physical hazard due to the potential of a sudden release of pressure such as explosive or a compressed gas as defined by 29 CFR 1910.1200
Reactive Hazard - A material that poses a physical hazard due to the potential to become unstable reactive, water reactive or that is an organic peroxide as defined by 29 CFR 1910.1200.
STEL - The ACGIH Short-Term Exposure Limit, a 15-minute Time-Weighted Average exposure which should not be exceeded at any time during a workday, even if the 8-hour TWA is less than the TLV.
TLV - ACGIH Threshold Limit Value, represented herein as an 8-hour TWA concentration.
8-hour TWA - The time weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.
~~W~~ - DO NOT ADD WATER - water reactive materials may produce toxic gas, extreme heat, or chemical reaction on contact with water.



Health	3
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Pentachlorophenol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Pentachlorophenol

Catalog Codes: SLP3943, SLP1126

CAS#: 87-86-5

RTECS: SM6300000

TSCA: TSCA 8(b) inventory: Pentachlorophenol

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: C_6Cl_5OH

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Pentachlorophenol	87-86-5	100

Toxicological Data on Ingredients: Pentachlorophenol: ORAL (LD50): Acute: 27 mg/kg [Rat]. 117 mg/kg [Mouse]. VAPOR (LC50): Acute: 502 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Hazardous in case of skin contact (permeator), of inhalation. Slightly hazardous in case of skin contact (corrosive, sensitizer). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to blood, kidneys, lungs, the nervous system, liver, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep container dry. Do not ingest. Do not breathe dust. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Keep container tightly closed. Keep in a cool, well-ventilated place. Highly toxic or infectious materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.5 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Pungent. (Strong.)

Taste: Not available.

Molecular Weight: 266.34 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: Decomposes. (310°C or 590°F)

Melting Point: 188°C (370.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.987 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 9.2 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 27 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 502 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: The substance is toxic to blood, kidneys, lungs, the nervous system, liver, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion. Hazardous in case of skin contact (permeator), of inhalation. Slightly hazardous in case of skin contact (corrosive, sensitizer).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Chlorophenol, solid : UN2020 PG: **III**

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Pentachlorophenol California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Pentachlorophenol Pennsylvania RTK: Pentachlorophenol Massachusetts RTK: Pentachlorophenol TSCA 8(b) inventory: Pentachlorophenol SARA 313 toxic chemical notification and release reporting: Pentachlorophenol

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R38- Irritating to skin. R41- Risk of serious damage to eyes. R48/20- Harmful: danger of serious damage to health by prolonged exposure through inhalation. R48/25- Toxic: danger of serious damage to health in case of prolonged exposure if swallowed.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 11:12 AM

Last Updated: 06/09/2012 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for

Appendix III of Section IX

Evidence of Release

A discussion of evidence of release is presented, where applicable, in the individual Preliminary Review Unit Checklist for each NOR Unit and/or AOC.

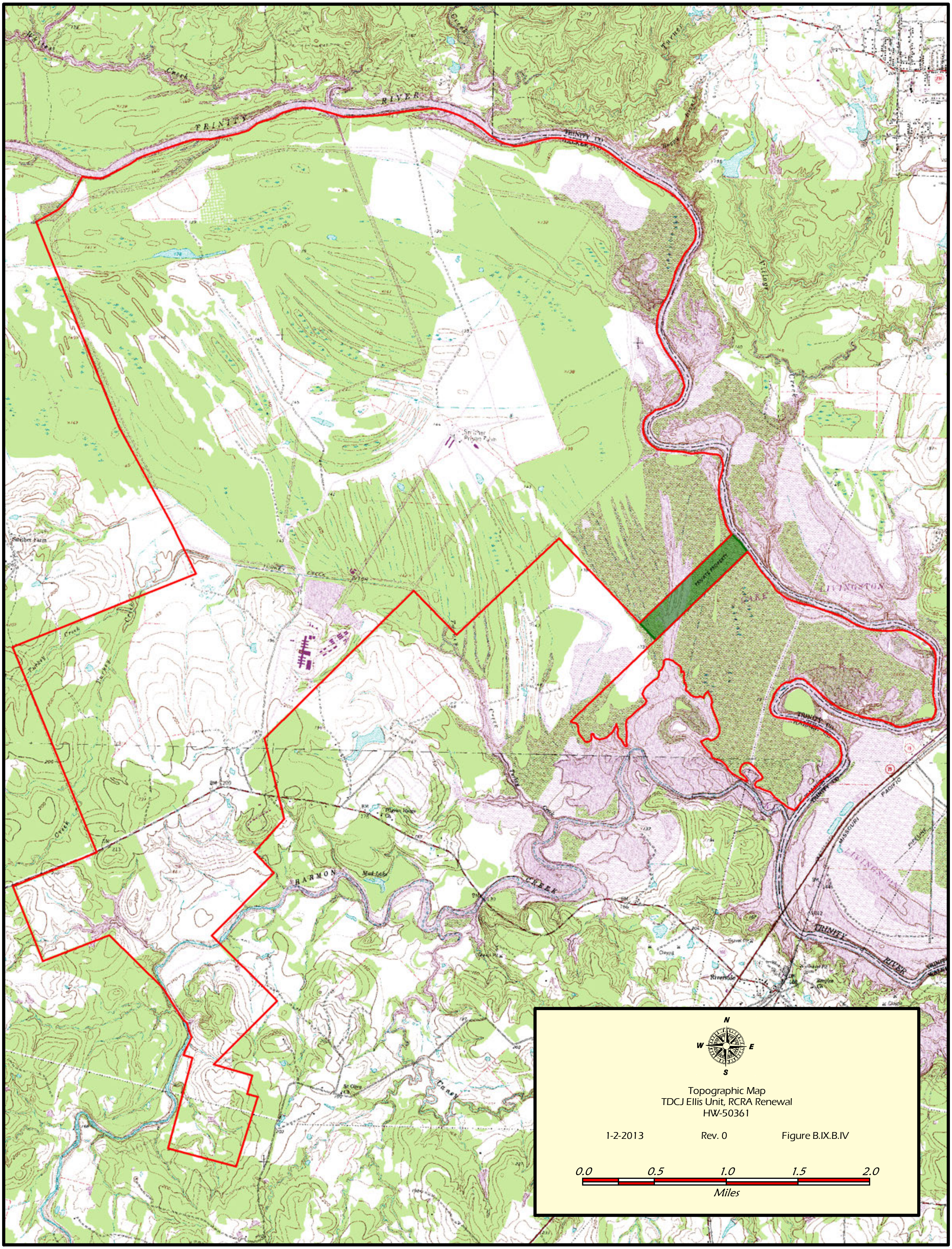
Attachment B.IX.B.2
Evidence of Release

There is no evidence of release at the TDCJ Ellis Unit Former Landfill (FLF). The FLF is in detection monitoring and no analytes have been detected above the PCLs.

The FLF is located on prison property and is a closed unit; therefore, the potential for releases from this unit is minimal. The unit is capped with a compacted clay cover to minimize infiltration of rainwater and are maintained as required in the Post-Closure Care Plan to minimize erosion; therefore, exposure to air, soil, and groundwater are minimized. Groundwater impacts from the FLF are managed through the Groundwater Detection Monitoring Program described in Section VI, Attachment B.VI.; it should be noted impacts have not been identified. The FLF is located several thousand feet from the nearest property line. Thus, in the event that a release occurs, the groundwater monitoring system will detect the release before the contaminants of concern reach the property line. In the event of a release, exposure to hazardous waste constituents would include constituents of wastes which have been disposed of in the FLF. These constituents include volatile organics and metals.

Appendix IV of Section IX

Pollutant Dispersal Pathways



Topographic Map
TDCJ Ellis Unit, RCRA Renewal
HW-50361

1-2-2013 Rev. 0 Figure B.IX.B.IV

SECTION X

AIR EMISSION STANDARDS – NOT APPLICABLE

SECTION XI

COMPLIANCE PLAN – NOT APPLICABLE

SECTION XII

HAZARDOUS WASTE PERMIT APPLICATION FEE

TABLE XII.A – HAZARDOUS WASTE UNITS (FOR APPLICATION FEE CALCULATIONS)

Table XII.A. - Hazardous Waste Units (For Application Fee Calculations)

Verbal Description of Unit	Rated Capacity	Surface Acreage[1]	# of Unit Types[2]	Identical Unit Justification[3]
Former Landfill	65.000 CY	4.08	1	
		Total[4] 4.08	Total[4] 1	

1. Number of calculated acres.
2. Enter number of units except for units identical in type and use which only count toward a single $500.00 fee.
3. Explain justification for any units claimed as identical in type and use.
4. Enter these totals on the worksheet.

TABLE XII.B – HAZARDOUS WASTE PERMIT APPLICATION FEE WORKSHEET

Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

Name of Facility: TDCJ Ellis Unit

Solid Waste Registration Number: 71331

1.Process Analysis - $1,000.. $ 1000

2.Facility Management Analysis - $500... $ 500

3.Unit Analysis - ______ units @ $500 per unit................................ $ 500

4.Site Evaluation - 4.08 acres @ $100 per acre............................... $ 408

(Maximum of 300 acres)

5.Minor amendment, Class 1, or Class 1[1] modification - $100........... $ 100

6.Cost of Providing Notice - $50 (+ $15 for a renewal) .... $ 65

Pay This Amount **Total** $ $2,573.00

Make Checks Payable To:

Texas Commission on Environmental Quality - Fund 549 *(your canceled check will be your receipt)*

Complete And Return With Payment To:

Texas Commission on Environmental
Quality Financial Administration Division -
MC 214 P.O. BOX 13088
Austin, Texas 78711-3088

The applicant's fees are subject to evaluation by the technical staff of the Texas Commission on Environmental Quality (TCEQ). However, the TCEQ reserves the right to assess further fees as may be necessitated.

Please do not submit a photocopy of the check (or equivalent transaction submittal) with your application packet but provide only the following account information:

Check No.	Date of Check	Check Amount

Please see the attached receipt from TCEQ epay - next page

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
EPAY • ONLINE PAYMENT APPLICATION

Questions or Comments >>

Shopping Cart | Select Fee | Search Transactions | Sign Out

Your transaction is complete. Thank you for using TCEQ ePay.

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt and the vouchers for your records. An email receipt has also been sent.

Transaction Information

Trace Number: 582EA000616271
Date: 07/02/2024 09:17 AM
Payment Method: CC - Authorization [redacted]
ePay Actor: JENNIFER STARK
Actor Email: [redacted]
IP: 208.127.201.116
TCEQ Amount: $2,573.00
Texas.gov Price: $2,631.15*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Payment Contact Information

Name: JENNIFER STARK
Company: AECOM
Address: 13640 BRIARWICK DR, SUITE 200, AUSTIN, TX 78729
Phone: 361-549-4439

Cart Items

Click on the voucher number to see the voucher details.

Voucher	Fee Description	AR Number	Amount
711686	HAZARDOUS WASTE PERMIT - RENEWAL		$2,508.00
711687	30 TAC 305.53B HWP NOTIFICATION FEE		$50.00
711688	30 TAC 305.53B HWP RENEWAL NOTIFICATION FEE		$15.00
		TCEQ Amount:	$2,573.00

[ePay Again] [Exit ePay]

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt for your records.

Site Help | Disclaimer | Web Policies | Accessibility | Our Compact with Texans | TCEQ Homeland Security | Contact Us
Statewide Links: Texas.gov | Texas Homeland Security | TRAIL Statewide Archive | Texas Veterans Portal

SECTION XIII

CONFIDENTIAL MATERIAL – NOT APPLICABLE